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## Original Contributions.

### NECROSIS, INVOLVING THE ALVEOLAR PROCESS, SUPERIOR MAXILLARY BONE, ANTRUM ON BOTH SIDES, HARD PALATE AND NASAL BONES, RESULTING FROM ALVEOLAR ABSCESS.

BY W. H. DE FORD, D.D.S., CEDAR RAPIDS, IOWA. READ BEFORE THE IOWA STATE DENTAL SOCIETY, AT DUBUQUE, MAY 1-3, 1900.

This case of necrosis is one of the most extensive, and at the same time instructive, ever recorded arising from an alveolar abscess. It serves a twofold purpose, in that it furnishes an opportunity, first, to condemn a method of treatment almost universally recommended by physicians in acute alveolar abscess; and, second, an opportunity to censure the very common practice, both among dentists and physicians, of operating for necrotic conditions of bone before desquamation has taken place. As the result of placing hot applications or poultices on the face in inflammatory conditions, pus is drawn away from the circumscribed sac in which it would remain, burrows, destroying all tissues with which it comes in contact, widely spreading the infection; and frequently breaks upon the face, leaving a scar which is seldom obliterated. Hot applications should never be applied to the face in cases of alveolar abscess. The very bad practice of removing necrosed bone before it becomes detached unaided results in disfigurement of the parts, and frequently terminates in death of the patient from septicemia. The operation for necrosis should never be performed prior to desquamation.

The history of my case is as follows:

Mrs. M—, about thirty years of age, was brought to my office Sept. 30, 1899, by her dentist, Dr. C. B. Whelpley, for an opinion relative to a very serious pathological condition. On Friday, Aug. 2, fifty-nine days previous, her dentist had filled a cavity of decay in the upper right first bicuspid with amalgam, the pulp having

been removed and the root-canals filled at a prior sitting. In the afternoon of same day the tooth became painful. Saturday it was more painful. Sunday the surrounding tissues commenced to swell. The cavity and root fillings were removed, access gained to the apical space, iodine and creosote applied to the gum. The desired relief was not obtained, and Tuesday, at the earnest solicitation of the patient (who had all arrangements made and was anxious to take a train that afternoon for Western Iowa), the tooth was extracted. The patient returned to her home, but instead of taking the train took to her bed. In order to obtain much needed sleep a physician was called to prescribe with that end in view. He not only ordered certain sleep-producing powders to be taken internally, but directed that hot applications be applied to the swollen face externally. Towels saturated with hot water were used for this purpose. It is not an easy matter to keep a hot towel in position on one side of the face, as you readily understand, so naturally the towels were evenly divided on either side of the nose, extending down over the upper lip, and one day a flaxseed poultice was ordered and placed in position as described. What was the result? The right cheek being saturated with that poisonous infiltration which precedes suppuration, the hot applications drew it down toward the lip, around under the nose, up into the tissues of the left cheek, resulting in the closing of both eyes, so great was the swelling. For three weeks the patient remained in a semi-unconscious condition, unrecognizable by friends, the offensive discharge so penetrating the room it was impossible to remain in her presence longer than a few minutes at a time. As soon as pus formed, at each visit of the physician, twice per day, the lance was inserted in two or three places and peroxid of hydrogen, full strength, injected. Even in her semi-unconscious condition, each injection of peroxid seemed as though dynamite was being exploded in her head, so terrific was the pain. You will remember that when peroxid comes in contact with pus oxygen is liberated and it expands twelve times its volume. The mucous membrane covering the hard palate was distended with pus to such an extent there was scarcely room enough in the mouth for the tongue. From this time on pus flowed freely. Upon arousing patient from a nap one or more puddles of pus as large as a silver dollar would be found on the nightdress, pillow or sheets.

Four weeks longer she was confined to the house before being strong enough to take out-door exercise. Seven weeks had now elapsed since the tooth was extracted, when she decided to make the delayed visit to the western part of Iowa. Two or three days after arriving at the home of her sister, she noticed a piece of loose bone in the gum over the right lateral incisor. Becoming alarmed she consulted a dentist. Upon examination he pronounced it an exten-

sive case of necrosis, predicting she would lose all the teeth in the upper jaw from molar to molar. Another dental practitioner gave the same opinion, adding that she would not only lose her teeth and the bone that supported them, but also a portion of the superior maxillary bone, and so much tissue would be destroyed that an artificial substitute could not be worn.

You can well imagine the effect such information would have upon the patient, who as yet was not sufficiently strong to be up and around all day. The last dentist further said that the case was an unusual one, and advised her to go to an adjoining state, referring her to a practitioner well known in Iowa. The gentleman consulted agreed with his fellow-practitioners in Iowa, pronouncing the case a serious and extensive one involving much tissue. He preferred that a colleague should see the case, and while a messenger was dispatched to that intent, called in a physician who had an office adjoining his own, and he was of the opinion that teeth, process and portions of the superior maxillary bone must be removed. In the meantime the gentleman summoned arrived, a man of extended observation and good ability, one who had made a study of oral surgery for some ten years. In his opinion an operation was imperative, the sooner the better. The inflammation had already involved the superior maxillary and nasal bones, and he intimated that it was a case of life and death. The patient could not decide upon an operation away from home and friends. She did not feel that in her weakened condition she could survive an operation, nor on the other hand, was she certain she wished to live, so great would be the deformity. She partially agreed to an operation, however, returning first to Cedar Rapids that her husband and friends might help her to determine her course of action.

Her dentist, Dr. Whelpley, in whom she had implicit confidence, insisted that she should see me before making a final decision, and rely on my judgment in the matter.

This is the history of my case prior to the time I saw it, as ascertained from the dentist who referred the patient to me, the physician who had charge of the case after the extraction of the tooth, the husband, and the patient herself, an intelligent and refined little woman.

Early on Saturday, Sept. 30, 1899, I saw the patient for the first time. She was pale, emaciated, anemic. Having a short upper lip, the first thing noticeable was the color of the gum, it being a deep purple, almost black, except a rim about a sixteenth of an inch deep just above the neck of the teeth, which was a trifle paler. This condition was present as far back on either side as the second bicuspid, and as high as the gum extended to the point where the

mucous membrane is reflected back upon the inside of the lip and cheeks. There was neither sensation nor circulation in the gum. I pierced the gum to the process in several places with a sharp-pointed lancet, and there was neither hemorrhage nor pain. About on a line with the ends of the roots of the eight anterior teeth and a little higher were a dozen fistulous openings. A number of small pieces of loose necrotic bone were peeping out of the purple gum. The incisors were loose enough to have been removed with the fingers; the cuspids and bicuspid somewhat firmer. Upon inspecting the hard palate I noticed two pieces of loose necrosed bone at the posterior palatine spine and removed them. Pus was draining freely from the fistulous openings. The space between the molar process and the alæ of the nose was still swollen and tender upon pressure. The upper lip possessed the sensation of stiffness, very noticeable upon laughing. The nasal spine of the maxilla and the nasal process of the same bone were very sore on pressure. Everything considered, it was the most hopeless looking case of necrosis that ever came under my observation. In addition to the local pathological condition, the patient's constitution had been undermined; her vitality was at low ebb, her strength exhausted, and, in my opinion, she could not have survived an anesthetic. An operation, which was not indicated in my judgment, would, I believe, have resulted fatally.

The operation for necrosis is never justifiable until desquamation, unaided, has taken place, and that requires from two to fifteen months. Garretson says, "In the special treatment of the sequestrum, it is to be looked upon as a matter of importance that the dead piece be detached by nature alone. The period at which a sequestrum is ready to come away can be known only by repeated examinations, the proper treatment being to wait always till exfoliation is complete, be such time longer or shorter. Nothing is gained by expediting the removal through operative proceedings, as by breaking away the bone, using the chain saw, etc., while the risk to life, from danger of septicemia, is very considerable. *To wait patiently*, keeping the system equal to the demand on it, is the surgeon's highest duty; to do more is to do harm."

Encouragement was what was needed, not an operation. I told her, "You have been unduly alarmed; your case is not so serious as you have been led to believe. You may lose one or two teeth, but



I am confident I can save the bone and adjust an artificial substitute. If I am mistaken and an operation should be necessary, it can be done later, when you are stronger. If you wish me to take your case, in two months' time your cheeks will be red and your lips rosy, and you will be neither deformed nor disfigured." A great change came over her countenance; her face was radiant with hope, and she remarked, "That is the first encouragement I have received."

Before dismissing the patient, assisted by Dr. Whelpley, we supported the loose right central incisor, opened into the pulp-chamber from the lingual surface and removed the pulp. A surprise was in store for us. I supposed, of course, the pulp would be in a state of liquefaction and putrefaction, but neither condition was present. A barbed broach was passed into the root canal, rotated, removed, the pulp coming with it en masse, and with sufficient vitality to stand erect on the end of the broach, with no perceptible odor. A few drops of Wampole's solution were dropped in warm water and the canal carefully syringed. Quantities of pus, followed by the solution, flowed freely out of the fistulous openings. There was one continuous cavity extending from second bicuspid to second bicuspid. The left central was opened in like manner and the pulp found in the same condition. Disintegration and liquefaction had not taken place. Syringed as before, the solution finding exit through the fistulous openings. I was much surprised at the condition of these pulps, and at the time was unable to account for it. I wanted a little time to think, so dismissed the patient until Monday morning, seeing her Sunday at her home.

One of the most frequent causes of necrosis is the result of discontinuance of the supply of nutriment to the tissues. Burchard says, "If from any cause—surgical ligation of an artery, pressure upon it by effusions or new growths, degeneration or affections of the arterial walls, pressure of an embolus or thrombus—the flow of blood to a part is arrested, the nutritive supply ceases and the cells dependent upon that vessel perish. If the entire venous outlet of a part be obstructed, there is not that removal of waste products necessary to the life of cells; moreover, access of nutritive material is prevented and the parts die. Complete obstruction of the capillary supply to a part is followed necessarily by a cessation of nutrition in the part, consequently necrosis follows." Cohnheim says, "After interruption of the blood supply, brain tissue, renal

and intestinal epithelium die within two hours." Ziegler states that "skin, bone and connective tissue live over twelve hours."

The great quantity of pus obstructed the nutritive supply; circulation was cut off, nutrition impaired, arteries, veins and nerves approaching the teeth and gums were dead, and finally the bone itself succumbed. These fistulous openings had not arisen from the dead pulps in the teeth, but were simply outlets for the pus from the tissues above them. The pulps would in time have become putrescent, and then there would have been additional trouble.

Pepto-mangan, a preparation of iron, pepsin and manganese, was prescribed, one-half tablespoonful in sherry wine three times per day. This is the best blood-builder with which I am acquainted, and it acted like a charm. This was continued a month, then phospho-muriate of quinin substituted for two weeks with the Blaud pill, then the pepto-mangan again during October, November and December. During January I discontinued all tonics, but renewed the pepto-mangan in February, continuing until the present time. As a mouth-wash, a teaspoonful of Wampole's solution in a glass of tepid water, the mouth to be rinsed at frequent intervals. Freedom from all household duties was demanded, and in their stead out-door exercise in the air and sunshine, walking up and down the porch, raking leaves, and working about the lawn, and as patient grew stronger, longer walks and moderate exercise.

Monday she returned. I opened into the left lateral incisor, left first bicuspid and right cuspid; removed the pulps and found them in same condition as those of the two central incisors, possessing vitality and no odor. As the right lateral incisor and left cuspid contained good gold fillings, the root-canals having been filled some years previously, these teeth were not opened. The solution thrown into the central and lateral roots worked out of the fistulous openings above the eight anterior teeth. That thrown into the right cuspid and left first bicuspid passed into the antrum on their respective sides, making exit through the anterior or posterior nares, depending upon the amount of pressure used.

An hour each forenoon for three months was spent in thoroughly irrigating the parts, and it is hardly necessary to say that the heaviness, weight and tension being removed, the offensive odor being destroyed, the patient improved every minute from the very first treatment. I had gained her confidence and the battle was won.

Upon arising in the morning, by making pressure with the fingers upon the lip and cheeks, she could force large quantities of pus from these fistulous openings, and at nearly every sitting I would remove one or more small spiculæ of necrotic bone from the gums. About the third week, when syringing the left lateral, I noticed for the first time a drop of blood. This meant the circulation was being established; new blood vessels were being built up, and from that time on the gum-tissue commenced to change from a dark purple to a normal color.

About the sixth week the nature of discharge was different. No longer was it offensive in odor; it was more the character of a yellow exudate, and contained minute particles of bone, like very fine grains of sand; the necrotic tissue was in a state of liquefaction, some of it being absorbed, other parts coming away through fistulous openings, and the larger parts working out en masse through gums.

The first of December, the eighth week after I took the case, while playing a game of cards a tickling sensation in the left nares caused the patient to sneeze violently, and she blew into her handkerchief a piece of necrotic bone about a quarter of an inch in length and an eighth of an inch in width, which I took to be a portion of the wall or septum between the antrum and the nares.

At Christmas you would hardly recognize her as the pale, bloodless, anemic person that entered my office twelve weeks before. Her lips were red and cheeks rosy; her general health was never better, and she reported being able to do more work about the house than at any time in years.

Jan. 1, 1900, the fistulous openings commenced to disappear. No longer could I force water through the openings via the root-canals, and I placed a dressing in these canals of campho-phenique and sealed them in with cotton saturated with chloro-percha. Jan. 24 I adjusted the dam, removed the temporary filling and root-canal dressing from the left first bicuspid; there being no odor, filled the canals with chloro-percha and hydronaphthol powder, and the cavity with Ames' metalloid. Jan. 25 the right cuspid was completed in the same manner, the 27th the left lateral, and the 31st the left central. Four of the five teeth from which the pulps had been removed are now (Feb. 1) in a healthy condition, firm in their sockets, and no evidence upon inspection is present to indicate they were ever in an abnormal condition.

What about the fifth tooth? In the early part of December the right central elongated, became very loose, and looked as though it would drop from its position in the arch. A large section of the process immediately covering the root of this tooth broke away from its position and commenced to migrate. The lower part pierced the gum and rested on the labial surface of the tooth; the sequestrum moved from right to left, and in two weeks more the left margin had cleared the gum. A thin blade could be passed under its margin from the gum to a point a little higher than the apex of the root, at which point the gum covered the upper end. The side next the lateral was still covered with gum its full length. This was the largest single piece of bone at any time in sight. It continued to move gradually to the left, till there was a piece of bone exposed to view as wide as the central incisor itself. The little sharp point that pierced the gum resting on the tooth came away from the mass, and from that time the tooth commenced to tighten. About Feb. 1 the side next the lateral had also passed out from under the gum, and now you could insert a thin blade under this side also, the only attachment being high up above the apex of the root. No discharge could be discovered, and the parts were healthy looking except a line of redness next the edge of the bone. Every day from that time on I expected to see my patient walk in, having in her pocket-book the sequestrum. From the time it emerged completely from the gum it commenced to diminish in size, the thin edges were crumbling away and liquefying.

To have removed the sequestrum so soon as it pierced the gum would have exposed the root of the central from gum-margin to apex; the tooth would have been lost. This piece of process, though loose, helped to support the tooth and protect the delicate new tissue beneath while it was forming. April 18 the sequestrum dropped out unaided, and there was not even a depression in the gum to mark its former position. April 21 the root-canal was filled with chloro-percha, the crown cavity with metalloid, and the patient dismissed. The teeth are firm and comfortable, and not even discolored. The gum is in a normal condition; not a fistulous opening or sinus remains. Every atom of process covering the eight anterior teeth was probably destroyed. All blood vessels and nerves supplying these teeth and the gums died from discontinuance of nutriment to the tissues, the blood supply being cut off.

What would have been the result had an operation been performed in this case? Where would the operator have stopped? If an operation had been made, the surgeon must have removed all necrotic tissue. Imagine the result, horrible as it seems. First, the teeth must have been removed; then the alveolar process; that portion of the superior maxillary bone encompassing the antrum of Highmore; the nasal process and partition between the nares and antrum, and a portion of the hard palate, all the hard tissue from teeth to the thin bone supporting the eyeballs. It would have been impossible to have removed all of the infected territory, and after the operation the wound would have filled with serum, which, under the circumstances, would form the very best culture-medium for the microorganisms to enter and propagate in, and the patient would have been poisoned to death in short order.

In conclusion, let me repeat: First, never place hot applications on the face in alveolar abscess, and, second, the operation for necrosis should never be performed prior to desquamation.

### PROPHYLAXIS IN DENTISTRY.

BY D. D. SMITH, D.D.S., M.D., PHILADELPHIA. READ BEFORE THE ACADEMY OF STOMATOLOGY, PHILADELPHIA, JUNE 26, 1900.

It was the privilege of the author to first present the subject matter of this paper before the Washington City Dental Society Feb. 24, 1898. The talk then made was afterward elaborated and presented as a paper before the Northeastern Dental Society at Hartford, Conn., in October of the same year. This paper was published in the *International* January, 1899. The theories then timidly advanced having in experimental practice apparently congealed into concrete principles, it seems fitting and appropriate that the matter should be brought in a formal manner to the notice of this academy, for the significance attaching to the principles herein enunciated should command the most serious attention from the reflective and earnest minds of the profession.

Whilst it is not a written declaration of dentistry, there is nevertheless a distinct impression emanating from dental literature and dental teachings, to the effect that any advancement in dentistry must be either through improved mechanism, new materials or new methods of operating; in other words, there always has been and still is given to the *mechanics* of dentistry a decided preponder-

ance of energy and effort. It has been the good fortune of the author, while seeking an interpretation of certain phenomena which are always attendant upon the more common dental lesions, to be led out of the beaten paths of thought and effort and into investigations for the betterment of the teeth, in distinctively opposite ways and by distinctively opposing methods. The results of these investigations and experiments, like the methods employed in producing them, are wholly antipodal to the present thought of the profession; and hence are brought to the notice of the profession with a degree of hesitancy and with some trepidation.

It is my belief and conviction, that when the secrets of the etiology of caries of the teeth shall be clearly unfolded, the inevitable conclusion will be that to *tooth environment* rather than to structural composition, is due by far the larger percentage of dental troubles. Firmly convinced of the impregnable nature of this proposition, my efforts have centered upon means and methods for producing and maintaining the most perfect attainable isolation of the teeth from concomitant agencies of decay.

Special foods and methods of infant-feeding for the production of structural tooth resistance ever have been and must continue practically abortive; and especially so as affecting aggregations or any considerable numbers suffering from defective dentures, hence no investigations were made in this direction. The very pinnacle of absurdity in this field seems to have been attained at a recent dental meeting in Richmond, when in criticising certain proposed measures for compulsory teachings respecting the teeth and enforced methods of caring for them, in the public schools, one gentleman maintained that the wiser and better course would be for dentists to teach physicians (!) the proper methods of attending to the dentition of children; for physicians, having in their charge the "little stomachs" of the children, could prescribe and regulate food for them and thus maintain good digestion and consequently produce good teeth. This incident is introduced here to give emphasis to the impracticability of *any* systematic regulation of children's diet, and because it so plainly illustrates the *reductio ad absurdum* of the proposition that a physician's care or any special feeding will or can effect systemic assimilation of special articles of food to the production of structurally good teeth. Given food in proper quantity and in variety such as is ordinarily found in the home of an



American family, the system will unerringly appropriate the elements required for tooth-building, through the same elective affinities that obtain in the consolidation of other tissues, and by no other means. The important work devolving on the physician or dentist is to so control environment during the eruptive stage and thereafter (a matter reasonably within the province of either profession) that the formative processes exhibited in the activities of the pulp shall not be hindered or disturbed by adverse chemical agencies acting upon the erupted parts of the tooth.

Dr. Williams of London, whose writings have been received with considerable favor in this country, in a letter in *Items* said: "I have repeatedly pointed out that in my judgment the greatest hope for the future in saving human teeth lies in the direction of the prevention of decay by the use of germicides." The inadequacy of this proposition will be plainly seen when we consider that decay in human teeth is by far the most controllable affection to which they are subject; that bacteria is but one of several causes of decay; and if it were *the* one and only cause of decay and other troubles of the teeth, there has yet been discovered no effective germicide which can be safely used in the mouth. The same writer says further upon this subject: "In my own practice I have relied chiefly upon a strong solution of hydronaphthol in oil of cassia. . . . This I use freely in all cavities, and then before filling I use a varnish of Canada balsam in chloroform in which there is ten per cent hydronaphthol. My patients use a dentifrice in which hydronaphthol and oil of cassia are the principal germicides. Decay in many instances has been almost entirely arrested." Although Dr. Williams may have relied on these agents in his own practice, until we are given further and more specific information respecting the action of "hydronaphthol in oil of cassia," and some reliable data relating to the efficiency of their germicidal properties, as well as the practicability of their use in dentifrices and mouth-washes, we cannot feel any assurance whatever that in these agents we have any valuable addition to the present long list of so-called germicidal nostrums urgently seeking recognition. Whilst germicidal washes may possibly be made of some value, at present they fall very far short of meeting the requirements for the prevention of tooth decay.

If the generally accepted theories respecting the causes of caries are correct, among which the presence of bacteria and their products

stands most prominent, it necessarily follows that *environment* is the important factor governing decay of the teeth; and to systematically enforce a complete and positive change from bad to good in the mouth and about the teeth is a method of prophylaxis both efficient and safe. The practice conceived, suggested and instituted by the author, briefly stated, consists in thorough removal at frequent and regular intervals—once every month has thus far proven most satisfactory—of all accumulations, whether solids, inspissated secretions, semi-solids, or bacterial formations, from *all* the exposed surfaces of the teeth, leaving the enamel, or whatever of the tooth may be exposed, thoroughly polished, and thus in the best condition to avoid hurtful deposits and equally to favor all efforts of the patient in the direction of cleanliness.

It is readily demonstrable that to maintain true cleanliness in the mouth, even on the part of the most painstaking, is impracticable if not impossible, without the direction and assistance of an intelligent and expert operator. There are the calcific deposits, constantly increasing; the more immediately hurtful acidulated bacterial accumulations; inspissated mucus retaining decomposing particles of food and furnishing most favorable conditions for bacterial culture. Besides these there are irregularities and certain formations and positions inaccessible to all ordinary methods of cleansing, which implies the perpetual retention of matter inimical to the teeth and gums. These injurious accumulations, with their equally injurious emanations, hitherto overlooked and disregarded by physician or dentist, are not only causes of decay but are equally causes of recession of gums and absorption of alveolar structure; the latter condition much more to be dreaded than simple decay of the teeth.

Recognition will yet be made of the important fact that to the *presence* rather than to the quantity of foreign matter on and about the teeth the beginnings of pyorrhea are wholly attributable; and the deleterious influence of a breath perpetually loaded with offensive emanations from this source—especially at seasons of salivary inactivity—as during sleep, will, we believe, ere long be disclosed as an important factor in many pulmonary and digestive disorders, and will be taken account of in medical diagnosis and treatment.

The prophylactic treatment advocated in this paper for the prevention and for the relief of these and other conditions has been found to be not only possible, but its feasibility has been clearly

demonstrated. I have described the process more commonly as cleaning the teeth, but there is a wide distinction between the ordinary methods of cleaning the teeth and the system of prophylactic treatment herein contemplated. The difference is: 1st, in appliances and methods; 2d, in extent and thoroughness of the operation; 3d, in the persistence and frequency of the treatment; 4th, in the object sought—the prevention both of decay and pyorrhea—and in the results attained.

When necessary scalers should first be used for the removal of solid deposits and such mucus concretions as may have been the means of softening or causing a partial decalcification of cervical enamel. Following this, the teeth should be thoroughly polished on *all* exposed surfaces—the labial, buccal, palatal, lingual, mesial, distal, and, in cases of developing teeth, the occlusal as well. The hand polishing with stick and pumice should reach to every exposed portion of the tooth, and be continued until the touch, which can be educated in this matter to distinguish better than the eye, gives evidence of thorough cleansing and polishing. The operation is best done with properly shaped orange-wood sticks charged with powdered pumice-stone. The prepared orange-wood is most conveniently handled and carried to positions desired by means of a Jack porte-polisher.

The grit of the not too finely powdered pumice has been found best adapted for removing viscid, mucoid accumulations and for polishing enamel surfaces; and what is even more important, the friction of the stick and pumice as applied by hand—*for power polishers should never be used*—seems to excite or stimulate the vital forces of the tooth to increased activity in the removal of waste, and the deposit of new and better material. The effect seems like massage treatment for muscular tissue.

The benefits resulting from this treatment are marked and readily seen, and extend to all parts of the tooth. Whilst the deciduous and young permanent teeth are most responsive, all classes of teeth and teeth of all ages are peculiarly benefited by the treatment, as is plainly shown in them after a few months of regular and careful massaging. These are striking exhibitions of improvement in color; of change in enamel, from an opaque appearance or condition to that of ivory-like translucency; of apparent increase in density, and a general improvement denoting a condition of decay-

resisting structure—changes which have impressed and even astonished the author as perhaps no other results from operations on the teeth or in the mouth have ever done.

Of the about forty cases of all ages, which have come regularly under a system of monthly treatment during the past two years, there has been no case of new decay which could not be readily accounted for, neither has there been an instance of beginning pyorrhea or other pathological condition of the gums. I have under observation now cases of the greatest interest, where the dark yellowish stains in cementum and dentin just above the enamel, and white spots under the enamel, denoting defective nutrition, are beginning to take on a better condition. The yellow is being replaced by better colored material and the white spots are disappearing, indicative of resumption of normal nutrition. In every case the enamel under this treatment assumes a more pleasing appearance and seems to take on a more vital condition. Erosion is retarded, if not arrested, and the same may be said of that form of wasting which occurs on the labial and buccal surfaces of the teeth, which Dr. Thompson in an article (July, 1900, *DIGEST*) has mistakenly classed under the head of "mechanical abrasion" due to mechanical friction, the result of too vigorous use of the tooth-brush and too gritty tooth-powders. My observation leads to the conclusion that these channels or grooves cut across upper or lower teeth, just at the gum margins, are *never* the result of mechanical abrasion. They appear in the worst form in situations which preclude abrasion from the use of the brush or from any form of friction. They are due to the mucus secretion, intensified in its chemical action by being mechanically held in contact with the teeth by the lips. This condition is found more commonly in mouths where there is limited action or movement of the lips, either in speaking or laughing, thus presenting little opportunity for commingling of mucus and saliva for the neutralization of the acidity of the former.

We need not dwell upon what may be classed as minor benefits resulting from this treatment, although they are as distinct and positive as are the thwarting of tooth decay and the prevention of pyorrhea. I close with the bare mention of a few of them: Entire and frequent change of environment, resulting in a state of cleanliness of the teeth and mouth unapproached by other means; a breath freed from the emanations of offensive matter persistently on the

teeth; perfect physiological gum and substructures; familiarizing children and young people with the dental chair and removing the fear of dental operations; teaching and assisting in the proper care of the teeth at the most critical period of tooth existence; relief from the torturing dread of dental operations, and the fulfillment of the designs of nature, in the comfortable use of the natural teeth through to old age.

### ARTICULATION AND ARTICULATORS.

BY J. A. ROBINSON, D.D.S., MORRISVILLE, VT. READ BEFORE THE VERMONT STATE DENTAL SOCIETY, AT ST. JOHNSBURY, MAR. 21-23, 1900.

We all know of the life work of the late Dr. Bonwill on this subject; of his circles, equilateral triangles, etc. You will find many solid truths in his work, and though there may be several things therein that are not essential to the proper articulation of the teeth, still there are ideas which, if rightly understood, will help us to be more certain in this line of work. There are certain laws which govern every motion of the body, and the nearer we approach those laws when supplying artificial members to that body—be it teeth, eyes, hands, or what—the more perfect the use of that substitute.

While Dr. Bonwill may have gone further than he need in some directions, he did not carry his work far enough in some others, as I will explain further on. I think the Bonwill articulator was perhaps the first step in advancement in the right direction. The work as done on the ordinary articulator in use can be but faulty and is tolerated because of its necessity.

Too much of this work is left to the three-dollar men, and for want of anything better the time is soon coming when that class of work will answer the purpose as well as better because of that necessity. Perfect work cannot be done on the ordinary articulator; there are certain movements of the human jaw that should be had in the articulator to get the best results. If there is an average of four inches from the center of one condylodial process to the other, and the same from the center of either condyle to the center line at the point of meeting of the cutting edges of the lower centrals, does it not stand to reason that artificial teeth set up on an articulator built on the Bonwill triangle would be more sure of perfect articulation in the mouth?

I think you will find the necessity of using an articulator of dif-

ferent construction from the ordinary one, which measures but two inches or less across the condyles or bearings; one which will give the motions of the lower jaw or maxillary, not only in the hinge or direct up-and-down swinging motion, but more particularly in the lateral motion or the motion made in chewing. After studying these you will not wonder at the remarks made by many who, wearing artificial teeth, say they do not chew their food but simply pound it. Their teeth were made to be used in but one way, and that directly up and down—any other motion would tend to dislodge their plates.

I wish it understood I am not advertising or advocating any particular articulator, but in order to make my work a success I have used several different ones, and will show several here, and will give what to me are the strong and weak points of each. You all have seen the Bonwill articulator. I need not say much about that one. The Gritman, while embodying the better qualities of the Bonwill, excepting its lightness, simplicity and freedom of vision of the work from the back, goes a little further and provides for adjustment of space between the bows, and also trying to better imitate the natural movement by providing for the downward motion of the condyles at the same time as giving the lateral movement of the lower maxillary. I also have the Snow face bow, which though made to be used with the Gritman articulator, can be adapted to any of those made wide. This has proven in my hands to be another advance step. It is but a short time since the idea that how the models went into the articulator made any difference with the work, was brought to my attention, nor have I taken any particular trouble to get the mesial line at the front of trial plates within the prescribed four inches from the joint, to say nothing as to whether the line was in the center of the articulator, or the back of models were up or down, or swung to either side from the position they should be in. I take it that "right is right," rather than "what is is right," and if we wish to meet with universal success, we must have everything as nearly right as possible. If the face bow were used by operators to set their models, more successful work would be the result; since using it my success has been gratifying, as the teeth when in the mouth more correctly fill the place of the lost natural organs.

I wish now to take you a little further towards a bettering of



results in the articulating of artificial teeth, the better to imitate the natural ones. I claim the usual relation of the jaws, or rather the two sets of the human teeth, are as a ball and socket, or better, a ball and cup, as some might think I referred to the ball and socket joints; not so. But to explain; the lower jaw, carried either laterally or forward and back, will resume its place when carried to its natural position with a motion as though a cup were being placed on the side of a ball just adapted to it. Take a small, straight edge like a pencil, lay it across the lower teeth, and you see that while buccal cusps touch the pencil, the lingual do not. By reversing the pencil to the upper teeth you will find the opposite; the palatal cusps touch while the buccal do not—showing the idea of the ball and cup, the upper teeth forming the ball, while the under form the cup.

The line drawn in conformity to the faces or grinding surfaces of the posterior teeth is curved, and the arc of a circle varying from a very small one to almost a straight line. I have used the arc of a circle twelve inches in diameter, as that perhaps is an average and a fair one to work on, though you will find many which are much smaller. Looking at the Bonwill diagrams, illustrating the teeth in mastication, you find he has the line drawn across the masticating surfaces of the molars, a straight one. I claim the line should be the arc of a circle. Then when the lower jaw is carried to the left in the act of chewing, the cup slides to its place on the ball and stops against the cusps on the other side. Dr. Bonwill curved his line toward the ramus, but not in the direction I have just mentioned. The teeth, if without cusps, and arranged as in Dr. Bonwill's drawings, would continually slide from side to side; while arranged as I claim is right, would come to a common center and remain there until again carried to either side as in masticating.

I will give you an outline of my methods: Impressions, models, bites or articulation taken and made as usual, being sure each step is correct. The bite-plates are then locked together with the little bite locks which I devised several years ago. These do away with all the uncertainties of the usual method of marking them with a series of crosses, etc., taking from the mouth separately and trying to get them into the same position they held while in the mouth. By locking and removing them together they must needs be just as they were in the mouth; then by using the face-bow you will get

the models in the articulator, so there is no doubt but they are right. Then set up the front teeth of both sets, fastening them to trial plates slightly, as you may wish to change some of them a trifle. Then, turning back the upper bow or top of articulator with the upper model, and attaching the convex disc, set the remaining under-teeth to the disc, making sure the inner cusps touch it as well as the outer. Thus making plain the reason for wanting plenty of space at back of articulator the better to view the work, even the front under-teeth are to be set to the disc. After the lower ones are set, remove the disc, turn back the upper model, and articulate the teeth to the lower ones. When I say articulate to the lower teeth, I mean it, and not merely touching them on the outside or buccal cusps; be sure of the articulation on the palatal side.

It is sometimes difficult to secure teeth that will conform to this method without some grinding—not of the cusps, if avoidable—to shorten them so as to go under the arch. It is also difficult to use gum teeth as now made. I am sometimes obliged to turn a bicuspid or molar round wrong side out to make it conform to my idea. Sometimes when articulating to natural under-teeth I crowd a tooth in nearly out of sight, at other times turn nearly or quite a quarter round. The over-bite of the superior incisors should not be enough to interfere with the perfectly free lateral and forward and back motion of the lower maxillary.

When the plates are completed the lower set is touched up on the convex side of a corundum wheel, which is made on the same arc as the disc, and the upper on the concave side; this is to grind off any particular cusp that might interfere with the free motion of the jaws, as the slightest obstacle may tend to destroy the easy sliding movement necessary to the perfect working of the teeth.

The wearers of plates carefully made, following these methods, have, I believe, as nearly a perfect denture as it is possible to make; they do not have to pound up their food, but can masticate or chew it as well as is possible with other than the natural organs. I have had the very best of success with my cases since adopting these methods.

I will call particular attention to two or three things: First, the usual method of articulating an upper set to the natural lower teeth; as a general thing the masticating surfaces of the lower teeth turn into the mouth perhaps more and more as time goes on, and

when we set up teeth to articulate with such, there is a tendency on the part of many to articulate simply to the buccal cusps—more especially in using gum or block teeth. This will undoubtedly make a set that looks well out of the mouth, but it is like eating with pegs to use such a plate. With teeth articulated like some I have brought with me, how much better mastication could be carried on than if the teeth touched but on buccal cusps! Second, articulate the teeth in such a manner that when the lower jaw is carried forward, the pressure or bearing is on some of the back teeth rather than on the incisors, also the same while using the lateral movements.

Some think there would be no difference between teeth set up on articulators two and four inches between bearings, but there is. The circle or arc of a circle cut from the center of lower centrals is much different, whether the compasses are set one or two inches from a line drawn backward from said center and intersecting a line running at right angles from it, representing the line of bearing of the articulator, or from condyle to condyle; and as one method is right, and just as cheap, let us adopt it.

Now a word more about articulators. The Gritman, while it has the sliding motion at the joints to imitate the downward motion of the lower jaw at the same time as the forward and lateral movements, still when in use the bows are nearer together by one-eighth inch when lower bow is brought forward than when at rest. I have overcome that fault in my articulator, as the bows are further apart when in that position, thus doing away with the breaking down of plaster cusps when articulating teeth to such. The upper bow can be turned back further than the Gritman, and is easily removed when desired. The springs used are too stiff in all of them. I have used mine with but a small rubber band, and some of the time without any sort of spring, as when left alone the weight of the cast will usually bring it to its right position.

The Gritman is the one I have used the most, as I have had it the longest. It has not enough space for viewing the work from the back; the inability to turn the top over further is to me a detriment, as is the lowering or nearing of the bows when giving forward motion to lower bow; this latter trouble can be easily remedied by filing off the plane on which the regulating screw works to a proper bevel. It is of the right width, uses bows, and on the whole I am

much pleased with it. The Antes has several good points as well as bad ones; the lacking of lateral motion may be an advantage to some, but not particularly so to myself; the locking back of the top is all right. It might be made a first-class articulator with a few changes; it is not wide enough at the bearings, has no provision for raising the upper bow when springs are deflected; the spring in this as well as in others is stiffer than is necessary; the vision of work from back is not materially obstructed, but would be if made wider, except across bearings. I much prefer the bows to the cast-plates to which to attach the models. The Bonwill sent me by a manufacturer has the up-and-down swing, but is only two inches wide across bearings and has no lateral movement.

The No. 7 or improved Bonwill is similar to the original, light, strong, well made and nicely finished, and is all in all a very good articulator, needing but two or three changes to make it all right. The plate for the adjusting screw is too small, not of right angle, and it does not allow of different thicknesses of models. The Bonwill, as made by myself, does away with part of these objections, as I have more space to view the work from the back, the adjusting screw above out of the way; and the angle or bevel of plate below the screw is such as to drop the lower model when using lateral movements.

Do you have upper plates to repair that are broken or cracked down through the center? Nearly all of us do. I think they are cracked or broken principally from one of two causes, perhaps both. One is the setting together of the jaws while sleeping, so hard and tight that something has to give. I believe this causes more trouble by grinding or knocking off the teeth than breaking the plate. The chief cause of the cracked plates to my mind is articulating the teeth on the principle just the opposite from what I have been describing, i. e., using the under teeth as the ball, the upper as the cup; then when in use the upper teeth are spread every time the mouth is closed, owing to the wedging motion. The same conditions exist when articulating upper teeth to the buccal cusps of the lower ones.

One thing more: I never sacrifice adaptability to looks when articulating artificial teeth, and that is my first and chief reason for using plain teeth. If we had a more perfect imitation of the natural gums I would never think of using block teeth unless the patient

particularly demanded them; they make the best looking set out of the mouth—there is no disputing that—but that is the only thing to recommend them, for you cannot articulate as you should and keep good joints. If you are making a set to *look* well out of the mouth, use block teeth, but if you are making a set for *use* in the mouth, use plain teeth every time. I wish to be emphatic on this point; never sacrifice adaptability to looks. You may possibly find you really have both when you put your case in the mouth.

In connection with Dr. Robinson's paper he had some twenty sets of teeth that were articulated by different plate-workers, making a very interesting and instructive display. It cannot be said that many of them were perfect specimens of the art, for there were but few that would be accepted by some of the better operators. As there were no marks on them to enable one to know who did the work, no one could feel hurt at just criticism. The greatest mistake made by many is in articulating (they do not articulate, so should not be called articulations), the setting the teeth so they touch only the buccal cusps and do not furnish any grinding surface. The set the Doctor showed, where he turned the second bicuspid and molars inside out in order to articulate with plaster lower molars and bicuspid, indicated the idea very plainly: others, using gum teeth especially, in order to keep within line, sacrificed articulation for sake of the looks. Dr. Robinson does not approve of that unless in case of the eight front teeth, including the first bicuspid with the six anterior teeth. You must care more for adaptability back of them. He advocates throwing away the cuspid and using the second bicuspid in their place when patient has but few lower teeth, and in setting up an upper set. Many a good-looking articulation set up on an ordinary articulator showed pronounced defects when shifted to an articulator having the lateral and forward and back motion, as is made in chewing. As soon as articulator was used by depressing the springs, the teeth would fall like hail (being mounted in wax or gutta-percha only). Some under teeth were so set in from the arch that if made up in actual practice the tongue would lift the plate every time used. While some were set up somewhat in conformity to Dr. Robinson's method, others were directly the opposite. Much blame can be ascribed to the articulator, the operator often being unable to see inside.

## Digests.

**OSTEOPLASTY OF THE LOWER JAW.** By Dr. V. Zykoff. Various devices have been employed to repair defects in the inferior maxilla. The writer considers the use of pieces of living bone for this purpose. These pieces may be removed entirely from some bone in the same individual, or they may be cut so that a pedicle is left, attaching the bony plate to the bone from which it was taken. The pieces of bone that are transplanted must be perfectly aseptic, and must include periosteum and medullary substance, in order that the plastic operation may be successful. The writer reports a case in which he performed osteoplasty of the lower jaw by a very simple method. A large part of the bone was necrosed after noma in the region of the lower lip and chin. A plastic operation was first performed, closing the defect in the lower lip by flaps of skin taken from the cheeks and neck. But this was not satisfactory, for there was continuous salivation and an ugly deformity of the lower part of the face. An incision was made along the lower border of the jaw, the bone was exposed, and a plate was sawed from the left side of the jaw, comprising about one-third of the height of the body of the bone and about one-half its thickness. The bridge was a trifle longer than the gap in the middle part of the jaw that was to be bridged over. One end of this bridge was fitted into the depression on the left side produced by the excision of the plate, the other into a depression on the right side of the jaw made with a chisel for this purpose. The rather profuse hemorrhage from the medullary cavity of the bone was arrested by plugging with surgeon's wax. The bridge was sewed to the frenum of tongue by means of a deer-tendon suture. Wound healed promptly.—*N. Y. Med. Jour.*

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**CARBOLIC ACID GANGRENE.**—That carbolic acid, applied externally in weak solutions, may cause gangrene of parts of extremities has been known for something like thirty years, but unfortunately this knowledge is not general, either among the lay or medical public. Harrington's article on this subject is therefore a timely and also a valuable one. The cases he reports, added to those recorded in the literature, make a total of 132 examples; and Harrington thinks it probable that many hundreds of fingers have



been destroyed from this cause. The popularization of carbolic acid as a household remedy for the treatment of small wounds and bruises is undoubtedly largely responsible for many such results, but in not a few cases the treatment has been instituted at the suggestion of physicians, and, we doubt not, by the advice of druggists as well. "An aqueous solution of carbolic acid (1 to 5 per cent), if applied to an extremity, as the fingers or toes, for a number of hours, in the form of a moist dressing or poultice, may produce gangrene or total destruction of the part." This may result without the effect of compression, merely from wrapping a cloth wet with the solution around the member. The length of the application need not exceed 12 to 24 hours, if the cloth is kept moist during this time. The explanation of this untoward result is not clear. It has been suggested that the gangrene results from the action of the acid upon the nerves of the part; from the production of thrombosis and prevention of nutrition; from direct chemical action on all parts of the tissues. Lévai showed that dilute solutions of other acids and of alkalies—hydrochloric, nitric, sulfuric, acetic, and caustic potash—may have the same effect when similarly applied. It is plain that the public, including druggists, should be taught to use other substitutes for wet dressings for trivial injuries. Harrington suggests tincture of hamamelis or solutions of borax or boracic acid. The fact that gangrene does not always result from application of carbolic acid makes this agent more dangerous.—*Ed. Jour. A. M. A.*

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NITROUS OXIDE GAS GIVES A WEEK IN FOUR SECONDS. This is the experience of a man who was under the influence of gas four seconds. One day years ago, shortly after laughing gas was introduced as an anesthetic, I had a case of rip-roaring toothache and went to a dentist to have the molar snatched out. I remember leaning back in a chair and taking a few whiffs of something that tasted sweet, and then, in the twinkling of an eye, I found myself on the quarter-deck of a man-of-war. There was no middle period of drowsiness or confusion; the thing happened in a flash, and strange to say, it seemed perfectly natural. I understood, without the slightest bewilderment, that the civil war was in progress; that I was an ensign on a Federal cruiser, and that we were in search of the Alabama. I had been in the navy and the routine of the ship was as familiar as my own name, I seemed well

acquainted with everybody on this particular vessel, and as I paced to and fro I chatted with my fellow officers about the weather, the war, the chances of the chase and many other topics of the time. The day wore on, evening fell, and I went to mess, where I had a long debate with the doctor on certain operations for wounds.

After my watch that night I turned in dog-tired and slept till dawn, and, not to fatigue you with my story, a week rolled by, filled with all the innumerable incidents, details and duties of life aboard ship. We told stories, sang songs, lounged for long hours under the stars, and speculated on the probabilities of a fight. One afternoon, to come to the point, we sighted the Alabama, and, after a chase about which I could write a volume, overhauled her, and the battle began. It was no long-range contest, but a duel to the death at pistol shot, and at last, riddled, torn and littered with dead, both ships closed in and the order rang out to clear for boarders. I was one of the first men over the side, and as I landed on the blood-soaked deck an enormous negro suddenly loomed above me with an upraised club. To this moment I can recall my rage and horror at that uncouth assault. I tried to dodge, but too late; the bludgeon struck me squarely on the jaw and with a force that seemed to rend my skull in twain. I could feel my bones crack like egg shells. The whole side of my face was driven in. I knew I was killed. Then I opened my eyes and saw the dentist holding out my tooth. I had been unconscious exactly four seconds.

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**CARIES RARE IN HINDU TEETH.** Pessimistic prophets declare that future generations of humanity will be toothless. Civilization has certainly brought with it, from one cause or another, a great increase in dental troubles, and the number of people nowadays whose teeth are either lost or diseased at an early age is very large. To a great extent this must be ascribed to neglect. Some observations on the teeth of the Hindus by Dr. Egbert were recently quoted in the *British Jour. D. Sc.* In his experience natives of all castes, from the Brahmin to the pariah, have uniformly large, strong, and exceptionally well-developed teeth, with the third molars and lateral incisors developed proportionately to the other teeth. In the hundreds of dentures which he has examined among Indian natives he has never seen a single malformed molar or lateral incisor, and these teeth were always present. The Indian people are remark-

ably exempt from caries, and do not often lose their teeth from this cause. There can be little doubt that this immunity is largely due to the fact that careful and regular cleaning of the teeth is a universal habit in India. It is strictly observed, because it is laid down as an important part of religious ritual. Very exact rules for its performance are given in the great book of Brahmin ritual, called *Nitia-Karma*. To clean his teeth the Hindu uses a small twig, one end of which he softens out into the form of a painter's brush. Squatting on his heels, and always facing either east or north, he scrubs all his teeth well with this brush, after which he rinses his mouth out with fresh water. There is, indeed, much in the personal habits of the Indian races which might with advantage be imitated by Western peoples. All Hindus, for instance, strictly observe the custom of washing with water after answering a call of Nature, and the European habit of using paper is looked upon by them as an utter abomination, of which they never speak except with horror. They object just as strongly, also, to our use of a handkerchief which is afterwards put in the pocket. The general neglect of the teeth in this country is certainly deplorable. Even among the richer classes it is quite uncommon to meet with people who make a regular practice of cleaning the teeth after each meal—a most desirable habit on hygienic grounds—and large numbers of the lower orders never use a toothbrush at all. The vegetable nature of the Hindu's food probably has its influence in rendering him less prone to caries than the meat-eater, but there can be no doubt that he owes immunity from much pain and ill-health to the salutary habit which his religion has wisely enjoined.—*Brit. Med. Jour.*

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**FALSE TEETH IN ANCIENT TIMES.** The *British Med. Jour.* says that in a recently published book entitled *La Prothèse Dentaire dans l'Antiquité*, Dr. Deneffe quotes a number of passages from the Latin poets who show that false teeth were in common use among the Roman ladies in the first century of our era. Several of Martial's epigrams refer to the subject. Thus in one he speaks of Ægle as having bought himself teeth of bone and ivory. In another Lecania's snow-white teeth are said not to be her own. In another we are told that Galla takes off her teeth just as she does her dress before going to bed. Lælia also has her bought teeth flung in her face. The *Journal* thinks, however, that in regard to

another epigram addressed to Maximina, Dr. Deneffe has misconceived the poet's meaning. The passage runs:

Non dixit tibi. Tu puella non es  
Et tres sunt tibi. Maximina, dentes  
Sed plane piceique buxeique.

Maximina is brutally told that she is no longer a girl, and that she has but three teeth, and those like pitch and box-wood. The reference clearly is to the discoloration of the poor lady's teeth, not to the material of which they were made. Horace, in describing (*Satires*, 1, 8) how the two witches ran away, scared by the portentous flatulence of the god Priapus, says that Canidia's false teeth fell out, whilst Saganæ dropped her borrowed locks. (Canidiæ dentes, altum Saganæ calicudrum excidere \* \* \* cum magno risuque jocoque videres.) Dr. Deneffe is disposed to give the credit of the invention of artificial teeth to the Phenicians. A set was found in the necropolis of Saïda (Sidon) by M. Gaillardot in excavating some tombs which are believed to date from six centuries before Christ. Certain objects found with the teeth suggest an Egyptian origin, and it is possible that the Phenicians may have learned this branch of the dental art from the wonderful people who dwelt by the Nile. It is probable that the Phenicians, who were great explorers and traders, introduced false teeth into Greece and Etruria, whence in due course they found their way to Rome.

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#### SULFURIC ACID IN TREATMENT OF ROOT-CANALS.

By M. H. Evans, D.D.S., Toledo, Ohio. Read before Toledo Dental Society, May, 1900. Sulfuric acid is an oily-looking, heavy liquid, without color or odor, but having an intensely acid caustic taste, and a strong affinity for water. Internally, it is a powerful tonic, an antiseptic and refrigerant. Externally it is used as a caustic. One of its compounds, aromatic sulfuric acid, is an astringent and for a long time has held a place in dental materia medica in the treatment of diseased gums.

Perhaps to no other subject has so much space been devoted in our dental journals as to this operation which so often ends in failure. In the treatment of root-canals in septic condition, and for opening up those fine tortuous canals we so often have to deal with, I get most satisfactory results from the use of sulfuric acid. For instance, we are called upon to treat a tooth, the pulp of which has

died, abscess has followed and the contents have discharged through the gum." After applying the dam remove as much of the contents as possible by careful instrumentation and the use of peroxid of hydrogen; introduce, by means of cotton on a broach or the syringe, a twenty per cent solution of the acid and pump, if possible, into the area of the abscess. This will sterilize the root-canal, as no germs can live in its presence; at the same time, being corrosive and astringent, it will break down and destroy the diseased tissue at the end of the root, leaving a fresh clean field for nature to take care of itself, with the assistance of milder antiseptic treatment.

As to the effect of the acid solution on the bone tissue surrounding the roots, Dr. Geo. Pollock says "dilute sulfuric acid does not affect the living, acting chemically on diseased bone alone." This may seem rather heroic treatment, but experience has proven that there is little or no danger of injuring the tooth or surrounding tissues, if carefully used. Its action can be stopped at any time by a saturated solution of bicarbonate of soda.

Now we have to deal with the buccal roots of an upper or the anterior root of a lower molar, into which we cannot introduce the finest broach. Place a pledget of cotton, saturated with fifty per cent solution of the acid into cavity, leaving it twenty-four to forty-eight hours; on removing you will find a clean white surface with a dark spot, indicating the opening and making it possible to introduce the broach and more of the solution. This can be repeated until the apex is reached. The acid attacks the tooth substance vigorously, breaking up the lime salts, forming a new compound and establishing a barrier to further action of the acid. Dr. Cassidy says: "The acid attacks the earthy portions, forming insoluble calcium sulfate and at the same time dehydrating the animal or gelatinous portion, which is made up of carbon, hydrogen and oxygen; these two latter elements are withdrawn, as already alluded to, leaving the indestructible carbon as a residue, to be incorporated with the insoluble sulfate, producing this, a protecting covering to the unaffected parts beneath against further inroads, both of the causing agent and other solvents. It is therefore self-limiting or under perfect control by the use of an alkaline solution.

I have frequently used a twenty five per cent solution in removing a small portion of the pulp near the apex very successfully. In a recent paper Dr. Callahan speaks of removing a broken broach in

the following manner: The canal should be filled with the acid solution and a solution of bicarbonate of soda placed in the pulp chamber. As the alkali works its way rootwards, successive explosions of carbonic acid gas will occur until eventually the gas will be formed by the action of the alkali on the acid beyond the broken broach and the latter will come up into the crown cavity in a boiling mass of matter—this seldom fails.—*Ohio Journal, July, 1900.*

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UP-TO-DATE REPORT OF PROCEEDINGS OF AN UP-TO-DATE MEDICAL SOCIETY. By Dr. Frank E. Bunts. First Surgeon: I have to bring before the members of this society a report of an extremely interesting case of rupture of the liver. The patient was accidentally kicked over a fence by a mule, and fell with his right side striking on a nigger's head. No symptoms developed for twenty-four hours, when the family becoming alarmed at the absence of symptoms, I was called in to see the case and at once diagnosed a rupture of the liver. The signs were somewhat obscure, but an operation made some thirty-six hours subsequent proved the correctness of my observations. The liver and portal vein were carefully sutured, the abdominal wound closed by four rows of sutures—catgut, silk, silkworm gut and silver wire respectively—and the patient made an uneventful recovery, the stitches being removed on the seventh day, and the patient returned to his occupation as mule-driver two days later, or nine days from date of operation. In conclusion, I would say that the chief points of interest in this case are the accuracy of the diagnosis, as well as of the facts in the case, and the most excellent results following a most hazardous and desperate operation.

Chairman: The most interesting paper of Surgeon ——— is now open for discussion.

Oculist: I am sure we are very much indebted to Surgeon ——— for his most valuable contribution to surgical knowledge, and the case reminds me of the rupture of an eyeball in a well-known man about town, following an attempt to watch all the ballet girls at once. In this case I made a careful examination with the ophthalmoscope, finding marked evidence of blepharospasm posterior synechiæ and choked disc and external strabismus. The treatment consisted of a prompt removal of the eye. The cure was prompt and uneventful, and up to this date he has not attempted again to



attend a ballet performance. In conclusion, I again wish to congratulate the author and the society upon his paper.

Gynecologist : The subject under discussion is somewhat out of my line of work, but it is a very brilliant result and reminds me of a case of endometritis fungoidis complicating a Bartholinian cyst in a patient 96 years of age. In this case I removed the uterus and appendages per vagina after excision of the cyst. She made an uneventful recovery, and has since married and feels as young as she did seventy years ago. I thank the doctor for the opportunity which his paper has given me to present this case.

Rhinologist : I cannot allow this opportunity to pass without referring to a case which this valuable report of a rupture of the liver has brought to mind. Some years ago, Mary G. snuffed a bean up her nose. A careful inquiry at the time failed to reveal the bean, but yesterday, or two years from date of first observation, there appeared an unmistakable bean sprout extending at the anterior nares. I at once diagnosed a sprouting bean and removed it under cocain. No untoward effect was produced, the patient making an uneventful recovery. The interesting feature in the case was that the patient came from Boston, and had probably been addicted to the bean habit for many years. I congratulate the doctor upon his very able paper.

Neurologist : Rupture of the liver must call to mind of all of us that from sudden jars we may obtain ruptures of the cerebral sinuses, or hemorrhage into the spinal canal. In a similar case to that related by the doctor, motor paralysis was present from the moment of receipt of shock incident to receipt of check for an outlawed bill. I made the diagnosis without any difficulty and offered to relieve the patient of the exciting cause. This he refused, and his paralysis was recovered from in time to take in the races the next day. Again I wish to congratulate the doctor upon his very elaborate and painstaking paper.

Second Surgeon : I can but indorse everything that the author has said and appreciate fully the value of the paper. I wish to take exception, however, to the means of diagnosis, and to say that from the symptoms related there could not possibly have been a rupture of the liver—nor could he, in my estimation, have sewn up the portal vein without seriously interfering with the functions of the liver and bringing on an attack of the piles. In all the cases of this kind

in which I have operated I have made it a point at the same time to dissect out very carefully the pile-bearing area. In conclusion, Mr. Chairman, I would say that I hope no one will think from my remarks that I differ in any essentials from the practice of my distinguished confrere.

Orthopedist: During my connection with the Hospital for Cripples I noticed very often and have the records of 150 cases which show the difference in appreciation of pain in different children. In some of the cases of kyphosis a plaster bandage was well tolerated, notwithstanding the formation of decubital sores, extending down to and laying open the spine—while in others bitter complaint was made by the patients, and it was necessary to remove the plaster and apply it according to an original method devised by me. The resemblance between these cases and that related in the paper this evening is very marked, and I appreciate the value of this addition to medical knowledge as confirmatory of my own experience at the Hospital for Cripples.

Chairman: As there is no further discussion upon this paper I would say that we are all very much pleased by the elaborate and carefully prepared discussion which it has called forth, and I will ask Surgeon —— to close the discussion.

Surgeon ——: The field of surgery has been so fully covered that I feel it impossible for me to add anything to that which has been already said.—*Cleveland Med. Gazette.*

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**SYPHILITIC LOCOLOSIS ALVEOLARIS.** By G. Lenox Curtis, M.D., New York City. Read before Section on Stomatology, Am. Med. Assn., June 5, 1900. Dr. Farrar says: "I believe locolosis alveolaris is a disease of the peridental membrane aggravated by calcareous deposits on the teeth, which increases the inflammation so greatly that decalcification of the alveolar tissue results, and when this state exists the advance of locolosis increases more rapidly until nature makes a serious effort to expel the tooth, and if successful, the disease subsides and is lost from view. When all the teeth are lost locolosis ceases to be observed, showing that whatever the cause of the socket disease it does not reappear elsewhere."

Up to about twelve years ago I had treated several hundred cases of what I then supposed to be pyorrhea alveolaris. But in the light

of our later knowledge I am of the opinion that only recurring cases were worthy of the appellation. At that time I boldly resorted to all methods then in vogue, and freely referred my cases in consultation to those whom I believed to know most on the subject. Degeneracy, due to uric acid, and rheumatism were suggested, and as I found the rheumatic and gouty tendency in patients having the disease I inclined to accept these as causes, if not *the* causes. But later, when the treatment did not effectually suppress the disease, I was satisfied there must be something else behind it all which should be learned. Reviewing the history of many of the most obstinate cases, I found that in several I could trace syphilitic association. Believing much information might be gained I followed this trail. It was difficult to secure sufficient data, however, by which I could prove scientifically that which I suspected, for syphilis has such an insidious undermining effect, and patients are generally so unwilling to admit facts, that the study has many discouraging aspects. It is, however, my opinion that this disease does not show itself only in those persons who have contracted it, but may also be found in the mother as well as her offspring. It was in these cases that I found locolosis or pyorrhea alveolaris to be so well defined that I felt encouraged. But obstacles arose which retarded my speedily reaching a definite conclusion.

It was my hope at this time that I might gain something by turning these cases over to specialists in syphilis, gout and rheumatism for treatment, but the varied results led to suspicion, and to caution in speech, until I could get sufficient verified data to act more intelligently. In many cases I found that treatment had not been continued sufficiently to eradicate the specific poison, or the secondary effects thereof.

In 1890 I had an opportunity to study blood, and then it was that I became convinced that the usual method of its physiologic study was inadequate. I now believe the blood carries with it the active principles of most, if not all disease. Then the generally accepted plan for the examination of blood was through dry and stained specimens. Even to-day that plan is largely followed. Could any but the most tenacious germs stand the baking process which is claimed to be unavoidable? Not only are such specimens exposed to the oxidizing influence of the atmosphere, but to heat of such a temperature that it is injurious to them. It may be said that only

the survival of the fittest can furnish the possible opportunity of study, and then they can be recognized only after a course of staining that decorates them in "war paint," chiefs of their tribe.

Kircher, in 1695, claimed the disease to be due to living organisms, but it was not until 1772 that Löstörfér claimed to be able to distinguish by microscopic examination of the blood the presence of syphilis and other diseases. In 1890 Watkins, after studying various methods of blood preparation, came to the conclusion and published the fact that there was only one method of scientifically examining the blood, namely, doing it in its fresh state, and before any changes had taken place. He also found that by instantaneous photographing of fresh blood objects which would otherwise be overlooked were revealed and permanently recorded, showing facts that the dry and stained specimens failed to do.

In 1892 my attention was called to Dr. Watkins' method, and it so favorably impressed me that I have since devoted considerable time to it, and now I am so convinced that it is the only road to an accurate diagnosis of disease, that I am still continuing the accumulation of data, with more or less satisfaction, having for my chief guide a sign in the mouth, which I first observed many years ago, but the importance of which I then failed to appreciate. This sign, which I denominate "egg-skin eschar," I find upon the mucous membrane extending along the ramus and the buccal surface of the gums along the molars. Occasionally it is to be found upon the cheek, near Steno's duct and the angle of the mouth.

In the early treatment of this disease, when I found the eschar present, as it was in many cases, I learned to associate it with some obstinate forms. Five years ago I began sending patients to Dr. R. L. Watkins for blood examination, with the view of ascertaining what existed. This I did without giving him the history. The examination of more than one hundred cases revealed strong evidences of syphilis, and in every instance when the egg-skin eschar was found the blood showed unmistakable proofs of the taint; in fact, in every case where the blood showed this the egg-skin eschar was present. Dr. Watkins has repeatedly pointed out to me the syphilitic spore, yet the majority of my patients declared there was no foundation for the suspicion of the disease. But when they received treatment for it they were cured. Although some patients were honest in not knowing the history of their trouble, others did

finally remember that they had contracted the disease, and still others acknowledged it at once.

So confident do I feel that my views are correct, that I now treat all cases of this kind with antisyphilitic remedies, and a large percentage of them are beneficial. In several cases I have been misled and diagnosed suppurative gingivitis as pyorrhea alveolaris. This I did because I could not find the egg-skin eschar, and when the blood was examined and seemed to substantiate my suspicions I refrained from giving specific treatment. To settle the question, I placed several patients suffering from suppurative gingivitis under specific treatment. This caused such unfavorable symptoms that I was soon forced to abandon it. In one case, where the alveolar process on the palatal surface of the teeth was nearly destroyed, and where it was practically in a normal condition on the buccal and labial surfaces, I was puzzled to know why this affection was not general. When septic pulps, salivary calculi and syphilis were excluded, I concluded the trouble to be caused by the pressure from a vulcanite plate, to which was attached an artificial velum that had been worn twenty years.

In another case the disease was extreme in character. There was great destruction of the interdental process, accompanied by a discharge of pus. Many of the teeth could readily be forced by the finger  $\frac{1}{8}$  inch farther into the socket. A tumor, osseous in character, extended along nearly the entire length of the alveolar process on the buccal and labial surfaces of the upper alveolar ridge. There was, however, a break in the line of the tumor between the right central and right lateral incisor. The right central incisor had been extracted several years earlier. In this space was an artificial crown, attached to a small bridge-piece.

The cast of the lower jaw showed by the hypertrophied condition of the gum the extent of the pocket. At first this patient persistently denied ever having syphilis, but the evidence of it was proved by examination of the blood. After I had gained the confidence of the patient, however, he admitted that he had contracted the disease a dozen years before, but had been under treatment for it. He did not wish it known to any one except his physician, who had positively stated that he was absolutely cured. The patient now returned to this physician, told him my views as to the cause of the tumefaction, and that I said he was still suffering from the taint.

The physician made light of the diagnosis and persuaded the patient not to return to me. I regret not having an opportunity to finish the treatment of this case, as it would have been an excellent support to my belief that this class of tumors is the result of that dreadful poison. It is fair to state, however, that within a year the health of the patient so completely failed that he was advised to visit the hot springs for syphilitic treatment.

Where rheumatism is found to be present in a large percentage of cases, I believe it to be a coincidence, though not the cause. I believe that syphilis so reduces the existing power of the constitution that rheumatism more easily steps in, much the same way that it may while the system is under any degenerating influence. I do not wish it understood that I believe pyorrhea alveolaris exists in every case of syphilis, nor that syphilis is found in every case of pyorrhea. But what I do believe is that some form of syphilis may exist in nearly all obstinate cases of pyorrhea alveolaris that can not otherwise be proved. As proof of the condition I mention, such cases do get well, and remain so when placed under specific treatment until all signs of syphilis cease to appear, not only outwardly, but when the blood fails to show any evidence of it whatever. The value of blood examination, which tells when to commence treatment and when to cease treatment, in this, as in some other diseases, is evident. I also regard it to be of great importance in diagnosing remote causes. Indeed, I predict that the time is not far off when examination of the fresh specimen of the blood will be the principal evidence in proper diagnosis. I have thought that locolosis or pyorrhea alveolaris may be caused by mercurial poison, but investigation does not bear out this surmise, for I have found this disease where there has been no history of mercury given. Is it not therefore reasonable to conclude this form of the disease is aggravated, if not caused, by tertiary syphilis?—*Jour. A. M. A., Aug. 18, 1900.*

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**PERSISTENTLY RETARDED TEMPORARY TEETH.** By Dr. George S. Allan, New York. Read before New York Institute of Stomatology, March 6, 1900. April 1, 1897, Master A. B., eleven years old, was brought to my office by his father for advice and treatment. The lad is in every way, mentally and physically, except in that which I will presently refer to, strong and healthy. He is well developed for his years, and stands well in his school.

On examination I found that I had to deal with a case of almost complete retention of the first teeth, upper and lower. In the upper jaw all the temporary teeth were in their proper places, firm and strong in their sockets, the two central incisors only yielding slightly to pressure. Between the centrals, however, there was a supernumerary, and this extra was a little more shaky than its neighbors. Back of the temporary second molars there was enough swelling and enlargement of the gums to show that the first molars were pressing forward and might reasonably be expected to erupt at an early date. On the palatine border of the alveolar ridge of the upper jaw on both sides the swelling was very pronounced, so much so that the thickness of the ridge was apparently nearly double what it should be. The width of the jaw was slightly below the normal. The depth was, however, about correct. The probe indicated a thickness of about three-eighths of an inch of gum tissues over the first molars, but this could not be definitely determined.

The lower jaw presented a somewhat different state of affairs. The temporary incisors had been cast off, and the permanent centrals were about a quarter of an inch through the gum. The thickness of the alveolar ridge was not so marked as in the upper jaw, in fact, not enough to attract attention, and the left first molar was in place, but not fully erupted. The occlusion of both jaws was perfect. All the temporary teeth were healthy and strong, and of a dense yellow color, and hardly at all impaired by decay. The erupting first molar was not so fortunate, and showed signs of imperfect calcification and breaking down of its grinding surface.

The speech of the boy was not much affected by the small palate and lack of tongue-room; still it was noticeable. So far as I could learn, the boy's first set of teeth indicated no departure from normal conditions. They came a little tardy, and the two centrals were cast off and the two permanent centrals took their place in the regular course of time, so much so that this period of dentition attracted no attention. In order to account for so wide and exceptional a departure from natural conditions, the hereditary possibilities were first inquired into, but little light or information of value was obtained. Nothing similar or of like nature, more or less removed, was found to exist in any member of his family. His mother has a supernumerary back tooth between the left superior second bicuspid and first molar, but no other deviations from natural conditions.



The father, however, has a most pronounced protrusion of the upper front teeth, accompanied with occlusion of the lower front teeth, with the soft tissues covering the alveolar ridge just inside the upper centrals, and this peculiarity he has transmitted, most unfortunately, to two of his children. One or more of his sisters had like peculiarities, which were remedied in early youth, but in no direction can there be found any history of tardy eruption of either sets of teeth or undue retention of the first set.

Seeking further light in a different channel, certain not usual prenatal conditions of the mother were mentioned by the parents, and should be alluded to here as having a possible bearing on the solution of the problem, the more so as they were followed by other abnormal conditions in the child. As stated by the mother they are as follows: "When three months pregnant, the physician in charge suspected I had developed diabetes, and he insisted on my giving up all sugar, all starchy fruits and food, excepting bread only. I lived almost entirely on meat, eggs, and green vegetables; no dessert of any kind; only oranges were allowed, as they contained so little sugar. This diet was faithfully kept up until the child was born. He was a delicate baby, with an abnormal opening in his head, extending from the middle of the forehead to the back of his head. This closed very slowly year by year until he was four years old, when it entirely closed. The child cut his first teeth when he was seven months old; the other teeth came slowly; the last baby tooth was cut when he was five years old. He was born May 13, 1886, so he is now nearly fourteen years old and is cutting his first molars." The above facts and data were given to me March 1, 1899. I mentioned that the patient came first on April 1, 1897. Through some misunderstanding I did not see him again till February 2, 1899. The parents thought I did not care to see him, for the reason that operative interference of any kind was impossible and a waiting policy only was proper. This was, in the main, correct, but not to the extent they thought. Nothing was done at first but make X-ray pictures. They were not very satisfactory, though they did show permanent teeth embedded in the maxillary bones and the roots of the temporary teeth of full length, with their fair proportions not in any way curtailed by the process of absorption. On the patient's second appearance it was evident that, left alone, no change for the better could be expected for many years, if ever.

Nature unassisted either could not or would not give a helping hand. The two years of non-intervention left things practically as they were when first seen. Two more of the first molars had made their appearance, and the two lower centrals had increased their length to nearly full proportions.

The process of root-absorption was evident only by its complete absence, and the temporary process of tooth eruption, while present, was painfully slow and tardy in commencing. All that could be done was a new effort to catch on to the case. New casts and X-ray pictures were made, and more consultations sought for. Hardly any two dentists gave the same advice or explanation. They agreed only in saying that they had never seen the like before nor had they known of one. So on general principles reliance only was to be placed with the added satisfaction of knowing that, whatever advice or course of treatment might be adopted, one would have to take great risks, and quite likely live to see the day when he would be sorry he had not advised and done otherwise.

After much study I decided to have two teeth extracted and watch the result. The two left temporary molars were extracted on June 10, 1899, a few weeks before the boy, with his parents, sailed for Europe, to be away for four or five months. These teeth were extracted on account of their location in the middle of the arch, and the probability that the first permanent bicuspidis would naturally be most advanced. Immediately after extracting two small braces were cemented to the teeth on the opposite sides of the vacant spaces to prevent any contraction, which, if it took place, as was probable if left alone, would certainly complicate matters if not make them decidedly worse. My opinion was that if the permanent teeth were given a chance they might and probably would slowly erupt, and the probabilities were strong enough to make it prudent to extract two temporary teeth in order to test the wisdom of my theory. The malformation and possibilities resulting therefrom were too positive not to make some effort to remedy it.

On December 14, 1899, seven months after the extraction of the two temporary teeth, other X-ray pictures were taken and careful examination and comparisons made with those taken at earlier dates. The net results, while not wholly satisfactory, indicate that the theory adopted and acted on was fairly well founded. A slow movement forward of the permanent teeth was indicated; a rapid

one was not looked for. What may happen in the future remains to be seen. Comparison was made at this time of the width of the arch with the earlier casts. This measurement showed that the width of the arch was increased fully an eighth of an inch.

In reply to my letters of inquiry Dr. E. S. Talbot says: "In dealing with the case of almost complete persistent temporary teeth at the age of fourteen, it must be remembered that there are several developmental factors to be considered. In the first place there is a tendency not marked but still observable for the periods of stress (which are indicated by dentitional phenomena) to appear later. In such cases the persistence of the temporary teeth would be an expression of advance. It has been observed that in such cases the temporary teeth remained nearly normal until removal was enforced by the appearance of the permanent teeth. In the case of a friend of mine every one of the temporary teeth remained until the thirteenth year, and would have remained longer had they not been removed. In other instances molars have remained still later. This condition of belated periods of stress would be an expression of advance. It is possible, however, that the condition described may be an expression of the law of economy of growth, whereby an arrested development on one side resulted in an exaggerated development on the other. This condition may therefore be a reversion to the monophyodont (one set of teeth) of the lower vertebrata, whereby the dyphyodont (two sets of teeth) is sacrificed to a more primitive type. The monophyodont condition implies an extra allowance of teeth. Besides the rudiments of the enamel organs for the milk teeth and permanent teeth, there are additional organs present in a very variable condition and number, nearer the external surface. They are, however, very generally present, and are exceedingly similar to the youngest stages of the normal enamel organs. Kollmann and Gegenbauer believe that they are abortive rudiments surviving from an ancestral condition in which teeth were more numerous. It is more probable that this may be the case, since there is evidence of hereditary defect. There is continually going on in the system a struggle for existence between different organs, and this struggle for existence, unless balanced by the nervous system, is apt to result in the gain of primitive structures at the expense of those later developed. These laws govern dental embryology as well as embryology in general. The question as to treatment would hence turn upon the fact

whether this condition was an expression of advance like delayed periods of stress, or whether it was an expression of degeneracy under the law of economy of growth. In the latter case other stigmata of degeneracy would exist. It should be remembered also that proper development of the permanent teeth will turn upon, as Minot has pointed out, proper development of the dental shelf. This dental shelf is one of the latter development, so far as its relation for the provision for the permanent teeth is concerned. Interference from hereditary defect, or from causes operating during intrauterine life, with the growth of the dental shelf would interfere with the growth of the permanent to the gain of the temporary teeth. The dental shelf (being of the transitory structure type), like all such, is more liable to atavistic tendencies than permanent structures."

Dr. Levi L. Howell of East Hampton, N. Y., sent me the following report of a case in his practice: "Miss H., aged twelve years, began to show signs of mental weakness. In one year she became idiotic, lost the use of words, could not care for herself in any way or manner, refused to wear clothing unless it was fastened so she could not remove it, lost all regard for her companions; and the family after consultation had concluded to send her to an institution. She would not eat, and she would try to get to her mother's breast to nurse. Her mother asked me to see her and give an opinion whether the trouble could come from the teeth, and if so, could it be relieved; for the mother reasoned that the child could not eat or take food, or it would not want to go to her breast. I called and saw the child. No permanent teeth were in the mouth except the first molars, and they were all broken down. The gums were terribly inflamed and bled on slightest pressure. Two of the temporary teeth only were missing. I advised the immediate extraction of the teeth, for I knew nature could not tolerate such a condition of congestion and inflammation as existed without some reflex trouble. I was given *carte blanche* and extracted *every* tooth, upper and lower. In three years the child was able to attend school, and to-day is in full possession of all her normal mental powers, and has permanent teeth in their position in the mouth."—*International*, August, 1900.

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**GOLD TIPS FOR ABRADED TEETH.** By Dr. George Evans, New York. Read before First District Dental Society, Feb. 13,

1900. In cases of mechanical abrasion of the teeth, in order to prevent further wearing of tooth-structure, the custom of many operators is to cover and slightly lengthen the incisive or occluding surfaces with gold. The lengthening of the teeth improves the occlusion, or as many term it, remedies the "close bite." This operation has been, and is yet performed mostly with gold foil or some of the crystal golds. In cases of the incisors or cuspids a suitable cavity is formed in the central section of the incisive edge, slightly undercut as anchorage and foundation for the gold. Most operations of this character involve considerable labor. In result they largely depend on the skillfulness displayed in the condensation of the form of gold used. Gold foil or any of the forms of crystal gold are necessarily pure, as combined softness and adhesiveness depend on the absolute purity of the gold.

Pure gold in ingot form is a soft metal. In welding it as a filling material, a slight additional hardness can be imparted to the contoured section. This is accomplished by special manipulation of the consecutive layers of the gold during condensation. In cases of mechanical abrasion almost invariably considerable force is exerted in occlusion, and consequently the gold is subjected to severe friction. Under such conditions the gold is indented and gradually worn away. In cases where the force of occlusion is more than the average the contoured section in a short time has to be renewed. To secure a result that will better resist this attrition and force of occlusion, platinum has been used in combination with gold. There is undoubtedly a harder metal produced and greater resistance offered. My experience in its use, however, has not been altogether satisfactory, as in some cases I have been annoyed by the edges of the metal, at points where the force of occlusion has been severe, curling up and forming bur edges that have been very annoying to the tongue of the patient and requiring at intervals trimming and burnishing. Owing to the facts above mentioned, the method of constructing the artificially restored section with alloyed gold, secured by pins or posts and cement, apparently presented when it was introduced advantages over any style of operation performed with filling material. These pieces of gold, ordinarily designated "gold tips," demand less excavation of the dentin to secure foundation or attachment in teeth with vital pulps, and as a rule are less laborious and complicated, and tax less the vital energy of both pa-

tient and operator. Owing to the fact that the contoured section of the gold tip can be formed of alloyed gold, the extremest possible hardness can be imparted to it. In the construction of gold tips in cases of living pulps, small platinum pins are used in holes drilled about the pulp-chamber in diamond shape. Three pins should always be used, except in very small lower incisors, where the space will not permit more than two. The pins should be inserted and soldered in the gold plate one at a time, and the plate each time adjusted to the surface of the tooth. The first pin, if fitted tightly, can be soldered without investment. Each subsequent pin, as it is fitted, can also be soldered in like manner, if only an atom of solder is expertly used at each soldering. When this cannot very well be accomplished, the pins and plate must be invested. The ends of the pins should be allowed to extend beyond the gold cap the required length of the tip. The ends of the pins, when extended above the gold cap, will materially aid in maintaining the solder in position when fused, so as to furnish length and contour.

To give special length and contour, the cap is shaped with wax to the required form, and the wax enveloped with No. 60 to 120 gold foil; the light foil for short and the heavy for long tips. This foil, when the tip is invested and the wax washed out with boiling water, forms a matrix, into which solder can be melted. In case three pins are used it is seldom necessary to extend the plate beyond the incisive edge over on the palatal side of the tooth. In restoration of the occluding surface of bicuspid three pins are required. In that of upper and lower molars three or four pins. In pulpless incisors, cuspids and bicuspid one large pin extended into the crown and root-canal will furnish the required anchorage. Small globules of gold plate slightly flattened, or pieces of crystal gold gently packed around the protruding ends of the pins on the surface of the cap, will aid in giving the desired contour to an occluding surface in the soldering. In a case of extensive restoration, a piece of gold plate the form of the required occluding surface might be stamped up, fitted over the cap in proper position with wax, invested, the wax removed with boiling water, and the space occupied with the wax filled with solder.

To artificially restore the incisive edge of the teeth in the manner described I am aware that gold lacks the esthetic advantages of porcelain, but the properties of porcelain will permit it to qualify

only in a limited extent as an agent in this special class of operations. A much larger proportion of men seem to be affected with mechanical abrasion than women. The age at which operative procedure seems indicated is generally past middle life. The preservation of the usefulness of their teeth with them is much more than any other consideration. In most cases the shortness of the teeth renders them only slightly visible, and where a moustache is worn it usually obstructs the view of the gold.

One great advantage possessed by partial crown operations of gold over those of porcelain is that the edge of the base can to some extent be burnished against the enamel so as to form a water-tight joint after the tip or inlay is cemented. In a case of abrasion where decay exists on the approximal side of a tooth and extends to the incisive surface, the gold cap or matrix, when fitted to the incisive section, should be bent forward and adapted to the cavity. The approximal cavity of course must be so shaped that the adapted gold can be drawn from it in a downward direction approximating a right angle with the incisive edge.

Gold tips, when skillfully constructed and applied, cannot at a glance be detected from similar operations done with gold filling-materials. My experience in their practical use dates back about ten years, and they have proved to me in results all that I claim for them as a method in operative procedure. I do not wish to be understood as advocating the use of "gold tips" of the construction I have described to the entire exclusion of operations with gold filling-materials for all forms of mechanical abrasion. I do not consider their use is indicated when the occluding surface of the enamel is only partially abraded or pitted.—*Cosmos, Aug. 1900.*

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**HYPERTROPHIC GINGIVITIS: HISTOLOGICAL RESEARCHES.** By Dr. Luigo Arnone, Pisa, Italy. It is not rare in dentistry to find the gums of some patients affected by the disease known as hypertrophic gingivitis; but few practitioners have until now described this affection of the mucous membrane of the gums. Magitot describes this hypertrophy as simply a phenomenon of hypergenesis in the fundamental anatomical elements. On the other hand, Dubois observes that this hypertrophy is often accompanied by dental anomalies, especially in the position of the teeth, and expresses the opinion that hypertrophy is most often due to the



transformation of a fungoid state, owing to the diminution in the diameter of capillaries, by cicatrization, and fibrous organization of the fungoid body. On this point, however, I can not agree with Dubois.

Many are the causes of hypertrophy of the gums. It is found in patients with green tartar. Broken teeth and roots will produce local hypertrophy. It is also found accompanying anomalies in the position of teeth, especially in the incisor region (perhaps because the continual movement of the lips produces a slight, but constant mechanical irritation). Besides, in the irregular interstices of these teeth food and mucous secretions are apt to lodge, together with microorganisms, which rapidly develop; and this explains the nauseating emanations from the mouths of these patients.

It must also be admitted that a predisposition exists on the part of patients to hypertrophy, since the same causes will often produce contrary effects on two different individuals. For in some salivary calculus will produce, as before stated, hypertrophy, and to such an extent as to sometimes cover the teeth; whereas in others (the majority) it will produce the contrary effect, and cause atrophy and recession of the gums.

A hypertrophied gum will not always present the same appearance. It is generally of a dark-red color, almost approaching to purple; its consistency is always more pasty than the healthy gum, and at times is softer and semi-transparent. It is never smooth on the surface, but feels rather granular to the touch; is easily detached from the necks of the teeth, and bleeds very freely on the slightest provocation. It is seldom painful; indeed, the only troublesome features are the oft-returning bleedings and bad breath.

I began my researches with the preconceived idea that I should find neo-formations in these fungoid growths; whereas I found with Magitot, that in all and every form of atrophy or hypertrophy of the gums there is no histological difference between the healthy and diseased tissue; it is only an alteration in the relation between the different tissues. In order to get a clear idea, I have placed sections of normal gum tissue beside the pathological sections; these were collected from the dissecting rooms. A transverse section of the gum differs but little from a section of the skin in any other part of the body. In fact, we find the corneous, the pellucid, the Malpighian, and the submucous layer.

Observe a section of hypertrophied gum, hardened in alcohol and seen by low power. In this the alterations are: (1) weakening of the superficial layers; (2) loss of shape and irregular arrangement of the papillæ in the mucous layer; (3) dilatation of the blood-vessels, some of which open on the free edge of the labial aspect of the gum in the incisor region. If we cast our eyes now on an enlargement of 300 diameters of hypertrophied gum, we can see even better the weakening and thinning of the outer layers. One can see blood-globules coming out of the free edge of the gum, through an open blood-vessel, some of them forming a clot near the opening. The cells of the mucous layer are larger and longer than the normal ones, and their nucleus three or four times the original size. While section of normal gum with the same power shows distinctly the endothelium of blood-vessels, this will show the blood-vessels greatly distended, with their walls pressing against the Malpighian layer, the cells of which are flattened and compressed. These sections were stained with hematoxylin (Weigert), but others treated with other stains have invariably displayed the same arrangement, the same exaggerated production of the usual constituting elements.

The continuation of the blood-vessel onto the free edge of the gum explains the frequent small hemorrhages met with in such cases, which are so difficult to control or to stop quickly. The walls of the vessels not being protected by other tissues, tear and fray with the greatest ease; the vessels then disgorge themselves, become flaccid, and after a while are closed again by a slight clot. But an increase in the blood pressure, as in walking or lowering the head, or even in talking, forces out the clot and the bleeding commences again.

With regard to remedies I have tried every possible astringent, and even caustics, without result. Actual cautery does not answer; indeed, at times the growth has increased after such remedies, probably because cauterization acts as an irritant. The only remedy I have found efficacious is a free excision of the spongy or softened portion of the gum, and after the surface has been left to bleed for a few minutes, to produce a fairly consistent eschar by actual cautery. The eschar will peel off in a day or two, leaving a healthy granulating surface beneath, which will take the appearance of the gum after ten or twelve days.

During this time it is well to advise the patient to use alkaline

solutions as mouth washes, so as to neutralize any acidity of the saliva, and to keep the mouth clean; also prescribe disinfecting mouth-washes three or four times a day; a solution of carbolic acid, 4 per cent, to be kept in the mouth for a few minutes.

Therefore on the strength of histological research, one may discard absolutely the idea that in hypertrophy of the gum, in the softening, in fungoid growths, there may be any neo-formations, even though a superficial examination and the microscopic aspect might lead one to suppose that these growths are a proliferation of the mucous membrane.—*L'Odontologia*.

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SUBLINGUAL FIBROMA OF NURSLINGS (RIGA'S DISEASE; FEDE'S SUBLINGUAL PRODUCTION). A great deal has been published of late in Italian medical journals concerning a small fibrous growth that occurs in infants, usually after eruption of the lower central incisors, and is situated at the frenum on the lower surface of the tongue. Judging from the number of cases reported this affection is rare; in fact, the Italian authorities assert that, so far as they know, these growths are practically never seen except in their own country. Even there they are said to be limited to the southern provinces, but very few cases having been observed in northern and middle Italy. Only two cases have been reported outside of Italy, and these were observed in France by Brun and by Duformier in 1895.

The growth usually begins in the form of a whitish patch upon the lower surface of the tongue. Gradually this patch assumes the shape of a small, hard, fibrous button, pearly white in color, bloodless, sometimes depressed, sometimes umbilicated. It varies in size from that of a pea to that of a quarter-dollar; it is well circumscribed and rests upon the frenum by a broad base. The adjacent lymphatic glands are not enlarged, and the tumor is not subject to inflammatory changes.

Almost since the first cases were reported by Urbano Cardarelli, in 1857, there have been two theories concerning the nature of these growths. One group of observers believed that "Riga's disease" was an infectious process, accompanied by general symptoms and by gastroenteritis and gradually followed by a severe progressive cachexia of infectious origin which terminated fatally. The second group maintained that the disease was a purely local affection, a

new growth due to accidental causes. They admitted the occurrence of intestinal catarrh, of cachexia, and of a fatal termination, but asserted that this train of events was due simply to the ordinary causes of gastroenteritis and of marasmus. This latter view has gained the ascendant in consequence of the masterful work of Francesco Fede, of Naples, and is now indorsed by most pediatric authorities.

It seems strange that the occurrence of such a simple fibrous growth should be limited to Italy when there is no apparent reason why this should be so, unless we choose to hide our ignorance concerning the etiology of the growth behind the convenient screens of "climate" and "race." We have been unable to find any cases reported in the United States, but we confess that we have been greatly hampered in our bibliographical work by the multiplicity of synonyms with which the name of this growth is burdened. One of the recent writers on the subject, Callari, attempts to account for the endemic nature of the growth by comparing it to keloid in the African race and to the congenital pigmentation in the Japanese. It is possible that when the attention of American physicians has been called to these growths cases observed in this country will appear. Even if race is concerned in the etiology of affection, there is no reason why these tumors should not be observed in our immigrants from southern Italy.—*Ed. in N. Y. Med. Jour.*

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**FLEXIBLE STRIPS.** By Mary E. Blake, D.D.S., Springfield, Mass. The manifold advantages of the carefully adjusted matrix commends itself ever daily anew. There are many excellent matrices in the market, and several band devices, more or less universal in application, while those made and fitted for each individual case, and wedged into correct position, are of real worth. Their use, however, is confined almost exclusively to the bicuspid and molar regions, and there is no denying the fact that they become more and more advantageous with each tooth posteriorly, where the problem of reaching the highest or lowest point of the cavity, the vulnerable cervical margin, becomes a test not only of one's skill, but patience as well. Of course the cavities posterior to the cuspid teeth are usually reached from the coronal surface, or cutting edge, the matrix forms the missing wall, and one proceeds to the filling with ease; but in the anterior teeth the conditions are different, the cav-

ities are almost invariably of mesial or distal aspect, and the use of a fixed matrix is both impracticable and undesirable.

The writer has derived an immense amount of satisfaction from the use of flexible metal strips as an adjunct to the insertion of cement fillings in the twelve anterior teeth, and each day is impressed with their value. The usual soft, half-hearted, discouraged, easily-creased and twisted German silver strip of commerce is not meant, but one of steel, fine of temper, well planished, smooth of edge, and full of spirit and spring in length, stiff and rigid from side to side, as a whalebone is both flexible and rigid at the same time. Such strips can be procured and should be about two inches in length, one-quarter inch wide and No. 42 B. and S. gauge. These should be kept clean and bright; this point is of prime importance. Now as to their use.

Everything being ready, except the actual mixing of the cement, pass the strip between the teeth, letting the ends remain loose, or tucking them around adjacent teeth. Often I request my small people to hold them back, allowing them to watch the procedure in the glass side of my table. The filling material, rolled into a tiny cone, is inserted into the cavity with suitable instruments, pressed well against the strip until the desired amount is used. Then bend the strip around the tooth, again and again, drawing the cement into and not out of the cavity, form the contour carefully, pass up to the cervical margin, leaving it smooth and well shaped, then withdraw it, allowing the cement to harden thoroughly.

When the orifice to the cavity is deepest on the lingual surface, hold the strip firmly on the labial side, press the cement into place from underneath, using a ball burnisher, securing concave form at once—indeed "the stitch in time saves nine," and advantage should be taken of every second of working time while the material remains plastic. Should it be necessary to insert the cement of rather soft consistency, it is well to oil the strip very slightly, or dust over it the powder of oxyphosphate mixture, while in gutta-percha fillings the strip may be slightly warmed, or not.—*Brief, Aug 1900.*

\* \* \*

NEUROTIC AFFECTIONS OF INTERSTITIAL GINGIVITIS. By J. G. Kiernan, M.D., Chicago. Read before Section on Stomatology, Am. Med. Assn., June 5, 1900. The chief function of the nervous system, beside its special function, is that of regulating

growth and repair. This function, as Marinesco points out, resides even in the neuron or nerve unit. While this function of regulating growth and repair is often connected with control of the vasomotor system, still as Collins remarks, there are trophoneuroses in which there are no appreciable vasomotor disturbances, and there are any amount of vasomotor disturbances which are in no sense connected with disturbances of nutrition. The nerves regulating growth and repair are called trophic nerves, and the conditions produced by anomalies of their action are, as already stated, called trophoneuroses. It was in the domain of bone growth that anomalies of the function of the trophic nerves were first observed. Brown-Séquard pointed out certain anomalies in the joints in locomotor ataxics; later similar disturbances were observed in the jaws of patients with this disease. Another great neurosis, parietic dementia, presented similar trophic disturbances, as I pointed out twenty-two years ago. Among these trophoneuroses was one characterized by looseness and falling out of the teeth, alveolar resorption, gingival ulceration and perforation, with at times maxillary necrosis. This condition had long been recognized by alienists and neurologists as causing that fall of the teeth which occurs in parietic dementia and locomotor ataxia. As Talbot remarks, this function of the trophic nerves, however, received but little attention from dentists, albeit its influence has been recognized in dental pathology, in connection with the great neuroses in which gum disorder occurs, followed by loosening of the teeth. Cases illustrative of this condition have lately been described. The case of Dr. Chagnon was that of a man aged 34, who, about ten years previous to coming under his care, had contracted syphilis. Two years later he married and had healthy children. In June, 1895, he was admitted to an insane hospital under intense maniacal excitement, which subsided to give place to the usual symptoms of parietic dementia. The psychosis followed its course without any remarkable incident until about September, 1897. At this time Dr. Chagnon found that the two incisors, the cuspid, two premolars and the first molar of the left upper maxillary were very loose. The teeth on being picked out were absolutely sound. The ulceration which affected the surface of the alveoli following the loss of the teeth did not heal. About the middle of September a sequestrum, in which the work of alveolar resorption was not much advanced, became detached. The palate

roof forming the anterior border of the maxillary sinus was part of the sequestrum. Two months later the ulceration had healed. In June, 1899, all the teeth in the lower jaw were sound. The two premolars and the right cuspid of the upper jaw were decayed. The second and third left molars, as well as the first right molar, were loose but perfectly sound. There existed no alveolar pyorrhea; neither did any trace of ulceration appear, except a small opening which would not admit a probe.

Conditions like this may occur not only from constitutional neuroses, but from disturbances of the cranial and spinal nerves as well. They are frequently noticed after injuries to these nerves, but they may also occur as a consequence of the great functional neuroses, like epilepsy, neurasthenia and hysteria. Their part in dental pathology is two-fold; they may cause an interstitial gingivitis, which pursues its course without bacterial infection, or they may so weaken the strength of the jaws and gums as to make these an excellent culture-medium for pyogenic microbes. In dealing, therefore, with the question of treatment, the trophic factor should be taken into consideration, more especially as the structures involved, since they are of a transitory type, are peculiarly liable to its operation.—*Jour. A. M. A., Aug. 18, 1900.*

\* \* \*

**PULP MUMMIFICATION.** By F. S. Cloud, D.D.S., New York. For the last sixteen months I have been using the same formula for mummifying paste with entire satisfaction—although my methods of procedure differ considerably from those laid down by Dr. Soderberg. I think you will agree that not every operator can remove the pulp from all and any pulp-chambers, but of course we meet one occasionally who claims to be able to do so. I can hardly believe that Dr. Soderberg would have us leave the contents of root-canals untouched and proceed to fill, either by using mummifying paste or any agent that might be discovered.

My method is as follows, and after using it in many cases where other methods had failed I may pronounce it a success. After devitalization, using the formula below for nerve paste—

Arsenious acid,

Cocain hydrochlorate, aa. gr. x.

Carbolic acid q. s. to make a paste.

I open up the pulp-chamber, thoroughly removing all and every



particle of the pulp possible, by use of barbed extractors, etc.—my aim being first to remove every vestige of the pulp possible; second, to know that the pulp is totally devitalized. I then check the hemorrhage, if any, dry the chamber as well as possible, wipe out with some one of the essential oils or Black's 1-2-3, introduce the mummifying paste at the consistency of thick cream, and insert gutta-percha points previously selected to approximate length and diameter of pulp canals; then wipe away all surplus paste and cap canals with cement, after which the permanent filling is introduced. If the mummifying paste becomes hard and brittle, soften with a few drops of glycerin.

I realize that this method might meet with success even without the use of mummifying paste, but if there is one fiber of the pulp left in the canal I prefer to use the paste. I am of the opinion that there can be no shrinking or shriveling in cases treated as above, because, first, we remove all or most of the fibrous matter; and second, we do not fill the entire chamber with mummifying paste, but simply use it to quiet a few fibers that cannot be removed. A tooth can be opened in twenty minutes should subsequent trouble occur. I think we will all agree that a pulp-chamber should be filled its entire length by some substance that will not disintegrate, and is compatible with tooth structure. I use mummifying paste only when I am in doubt as to removal of entire pulp.—*Brief, Aug. 1900.*

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**ALCOHOL AS A DISINFECTANT.** It has been a matter of much discussion whether alcohol is a bactericidal agent, and if it be, in what way it exerts its activity. When alcohol was first proposed for disinfection of the hands it was thought to be effective by acting as a solvent of fat, and thus preparing the way for the necessary intimate contact between the antiseptic solution and the epidermis. Later bactericidal activity was ascribed to alcohol, and this was thought to depend principally on its dehydrating property. There are some observers, however, who believe that alcohol possesses doubtful, if any, antiseptic qualities. For the purpose of reaching an independent conclusion on this subject, Salzwedel and Eisner undertook an experimental investigation, as a result of which it was found that a number of alcoholic solutions examined exhibited varying degrees of disinfectant activity, as compared with other well-known antiseptics, such as mercuric chlorid, carbolic acid,

lysol, sapokresol. Silk threads, with dried bacteria, were employed as test-objects, the conditions encountered in actual practice being duplicated as nearly as possible.

It was shown that alcohol is with most certainty destructive to staphylococci contained in pus dried on threads, when employed in aqueous solution with a specific gravity of .902 at a temperature of 19 C., that is, about 55 per cent (by weight) spirit. The disinfectant activity of this solution was not quite equal to that of one to one thousand mercuric-chlorid solution, but on the other hand it was not less efficient than 3 per cent solution of carbolic acid. Lysol and sapokresol in 1 per cent solution, as well as lysoform up to 4 per cent, were always less active than mercuric chlorid, alcohol, and carbolic acid. It was found that alkalinized spirit was more effective than ordinary alcohol in its action on dry threads, while the addition of mercuric chlorid or carbolic acid had no distinct effect in increasing the disinfectant activity. A generous coating of fat on the threads seemed to favor, while a thin layer rather retarded the action of the disinfectant. The application of gentle heat—30 C. or below—was thought to facilitate the disinfectant power. The time required for the manifestation of this effect varied with the period of desiccation to which the threads were exposed; the bacteria in fresh pus, for instance, being destroyed by mercuric chlorid, alcohol and carbolic acid in five or six, or even in three minutes, while if the threads were exposed after an interval of weeks or months, disinfection was, as a rule, not accomplished in less than from eighteen to twenty-four minutes. The results were equally bad when the threads were prepared from pus that had itself stood for a long time. These effects are attributed to inspissation of the medium containing the bacteria, retarding access of the disinfecting agents. Similar results were obtained with bouillon preparations made in the same way. Bacteria dried upon threads and placed for a long time in pure alcohol, and in some instances kept besides in the thermostat or the autoclave, retained their power of multiplication; but bacteria in a moist state, on the other hand, were destroyed in a short time by absolute, cold alcohol. This difference in effect is attributed to the desiccating and coagulating action of alcohol.

It appeared that the spirit capable of penetrating the bacteria with destructive effect should contain from 50 to 55 per cent of alco-

hol by weight, although weaker solutions are not without a deleterious influence on the bacteria. The development of staphylococci was inhibited by the addition of 70 per cent of alcohol by volume to the nutritive medium, the phenomenon being analogous to the process of alcoholic fermentation, where the yeast is destroyed when the percentage of alcohol reaches a definite figure. It was found that the addition of an acid, such as boric, acetic, or hydrochloric to the alcoholic solution augmented its disinfectant activity, but it was then discovered that the reaction of the threads was neutral or alkaline.

From the experiments outlined it is concluded that in addition to its desiccating action, alcohol exerts an especial toxic influence on bacteria. Although this toxic effect is much less than that of mercuric chlorid and carbolic acid, properly applied, it is, with regard to its disinfectant power, comparable with the latter two, occupying an intermediate position between them.—*Ed. Jour. A. M. A.*

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**TREATMENT OF FRACTURED TEETH.** By F. G. Gregory, D.D.S., Newark, N. J. Read before the Central Dental Association of Northern New Jersey, April 16, 1900. It has been the experience of the writer that the teeth most frequently fractured are the incisors and bicusps of the upper jaw. These usually have a history of having carried large approximal fillings, or of having supported artificial crowns. The bicuspid teeth generally become fractured by accidental occlusion upon some hard substance, such as a splinter of bone, lead bullet, etc., and not infrequently the palatal portion of the crown gives way, involving the inner cusp, and extending sometimes a distance well under the alveolar ridge. To prove that this is a very common condition of affairs, one need but examine the mouths of a number of adults to find that at least fifteen or twenty per cent of them have lost one or more cusps, and the characteristics of these teeth have been materially changed in the effort to preserve the remaining cusp; no effort in many instances having been made to build up a cusp mechanically to restore the masticating surface lost.

The incisor teeth to succumb are the frail roots of the laterals carrying metallic posts, supporting artificial crowns; especially those crowns not reinforced by a continuous band. It is my firm belief that these teeth (lateral incisors and bicusps), so often the first to

give way under a carious influence, should be the especial care of every operator, in the hope that fewer dentures shall be minus these desirable members, and gold crowns be denied the embrace now so commonly indulged.

*Old Methods.* When a patient presented with the condition such as outlined, it was the accepted practice to make a gold shell, so fitted as to draw the fractured parts together, or fit a gold band around the tooth, cement in position, dismiss the patient with the parting advice that "the best possible has been done for the tooth and we hope it will prove serviceable." Should the case be at all complicated, the detached portion was extracted and the operator's hands washed, while his conscience not being so easily appeased, disturbed him for many an hour for having sacrificed part of the human anatomy having a just claim for continued usefulness.

While many cases so treated have given a good account of themselves, it is not at all infrequent to find the soft tissues inflamed and a suppurative condition always present. This is easily explained by saying it was impossible to draw the parts together, thereby preventing the irritation set up by the sharp edges of the parts extending beyond the ridge of alveolar process. The whole procedure was looked upon as a mechanical operation, and not thought of more than wherein a mechanical principle was involved.

A satisfactory solution has been reached. Let me relate the history of the particular case resulting in a device so simple and efficacious.—Miss —, while away from home, having some slight disturbance, presented herself at the office of Dr. — for advice and treatment, the right superior second bicuspid having a filling in the distal approximal surface somewhat loosened. This was removed and the cavity washed with a mild antiseptic, after which an oxyphosphate filling was inserted. On returning home, the young lady having been under my care for many years, she requested an examination of her mouth and teeth, not only to discover possible cavities, but to locate the source of a disagreeable taste of which she was conscious. Carefully subjecting each tooth to thorough examination there was found to be a slight discharge when pressure was exerted upon the soft tissues adjoining the bicuspid on the superior right side, no apparent cause being exhibited. Thinking the root canal might not have been properly treated, the filling was removed, and in attempting to make a satisfactory exploration with a broach,

to my surprise there was no limit to which that broach would extend, demonstrating a longitudinal fracture involving the entire length of the root. What to do I knew not. The cusps were in proper relation, not having separated perceptibly. How to get the deep-seated portions in juxtaposition was a problem. Of necessity something must be done to retain the tooth, and that quickly, owing to the forced return of the student. The following plan suggesting, it was deemed wise to make the experiment. With a long slender drill the crown was perforated from the buccal surface, a second perforation being made at the neck of the tooth, just under the free margin of the gum, and a third perforation made about a quarter of an inch above the gum line; gold screws the exact diameter of the drilling instrument were made and introduced, after having tapped the perforation so as to engage the screw; the length of the screws under the gum was first determined and all the screws introduced evenly and the parts firmly bound together; after trimming and polishing the exposed ends of the screws there was no visible evidence of the tooth having been operated on, save what appeared to be small fillings on the buccal and lingual surfaces of the crown. The crown was refilled, and after a local application to act as counter-irritant the patient was dismissed. A lapse of four months finds the parts in a healthy condition and the discharge completely eradicated. Encouraged by such flattering success with my first and most difficult case, all similar conditions have been similarly treated and with equal success.

There is a vital consideration which, in my practice, has not been demonstrated as yet, but will be established I have no doubt. Teeth having living pulps frequently sustain injuries, resulting in the loss of a portion of the crown. Where the violence is not great enough to cause the death of the pulp, it is not beyond reasonable expectation, if the fracture be a simple one and the lost portion recovered, they could be held in their proper relation, using this method until union be established by a process similar to that of the other osseous tissues.—*Items*, Aug. 1900.

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SULFURIC ACID FOR ALVEOLAR HEMORRHAGE.—In a case where other well-known methods had failed and the patient was becoming alarmingly weak from loss of blood, sulfuric acid dropped in the socket, after washing the mouth out with warm water, caused the flow to cease within three minutes, and there was no subsequent return.—R. W. Turner, in *Items*.

## Letters.

### NEW YORK LETTER.

NEW YORK, Sept. 19, 1900.

*To the Editor of The Digest,*

MR. EDITOR:—Dentally and incidentally New York is absolutely barren of anything which would excite interest.

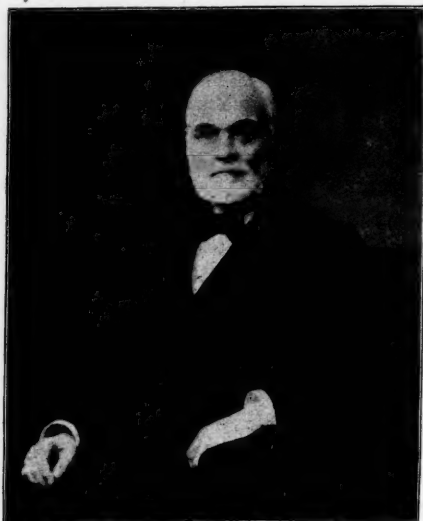
It is said that there are men who do not have their door plates brightened up for about four months during the year, so as to give the impression that they are out of town, but it has been found in many cases that by a little persistent ringing of the bell an entrance could be effected. We have seen only one dentist's house boarded up, according to the fad of New York's four hundred, and we think very few have the moral courage to forego the possibility of a chance patient.

Dr. St. George Elliott, well known in most of the large cities of the world, has leased the office left vacant by the sudden death of Dr. B. J. Perry. Dr. Elliott states that he has found by the last six years' experience in New York City that a dental practice cannot be purchased to profit.

Dr. J. W. Clowes died Sept. 9. Another of our veterans has fallen at 79 years, over 50 of it in the actual practice of dentistry. No one in our profession has been much better known by a connection with emphasized methods of practice. He early antagonized prominent practitioners by his advocacy of amalgam, for the feeling at that time ran high against it, yet the material has survived and to-day is second only to gold as a filling material. No practitioner ever did more to make it respectable, and this was accomplished by his conscientiousness in the handling of it. Only those who have seen specimens of his untiring industry in this line can have any idea of his work. He had the courage of his convictions and adhered firmly to same. His patronage has been large, and principally among well-to-do people who thoroughly appreciated his services. His most notable characteristic was his geniality.

Dr. Clowes began the study of dentistry in 1838 in the office of Dr. J. Smith Dodge, his brother-in-law. The following year he entered the Baltimore College of Dental Surgery, and was the last surviving member of the first class graduated by that institution.

In 1842 he opened an office in New London, Conn., and remained there until he was, as he used to say, "starved out," when he went to Columbus, Ga., which gave an excellent practice for several years. In 1850, like many others, even to this day, he came to New York, and here is where he battled with the amalgam haters. When Dr. Atkinson came to New York Dr. Clowes was from the start one of his most enthusiastic admirers, and he even took an office in his house so that he might become more familiar with Atkinson's advanced ideas. From this time on he made a larger use



of gold. He was extremely careful in everything he touched. His office in later years was magnificently fitted up, the instrument cases alone costing \$1,000.

Dr. Clowes leaves a wife and daughter, and a property that will suffice for all their material needs. The accompanying photograph was taken some ten years ago, yet he had not changed much at the time of his death.

Dr. Geo. Phelps of Columbus, Ga., to whom we referred in our last letter as being stricken with paralysis, has made a very rapid partial recovery. We received a call from him this month and



put on one of his molars an amalgam crown of good fellowship. He has gone to the Berkshire Hills for a while, hoping to entirely recover. May it be so.

A curious coincidence occurred while he was here. We have stated above that the late Dr. Clowes practiced at one time in Columbus, Ga. Dr. Phelps of course knew many of his patients, and so at every visit to New York he called on our friend. On Wednesday, Sept. 12, Dr. Phelps went as usual to the house, and on presenting his card a gentleman who opened the door (evidently the undertaker) pointed out to the street and said: "Dr. Clowes is in that hearse, and the ceremonies are just over." As it happened, Dr. Phelps was the only dentist at the funeral, and he could hardly be said to have attended. This is partly accounted for by the large number of practitioners away from the city at this time of the year.

Dr. W. W. Walker has been sued by the Crown Co. Truly, in this day and age no man is safe. He is just home from the Dental Congress at Paris, and remarks that the British dentists are now beginning to appreciate more and more Dr. Williams and his ability.

Dr. S. G. Perry is home again, as full of life as one of the speckled trout which he has been catching and eating this summer, so we shall look for gray matter full of poetry and wit as formerly. He is the acknowledged poet laureate of New York dentists; Kingsley the Chauncey Depew; Northrup the diplomat, and Walker our Mark Hanna.

We are thinking—How about our fellow dentists of Galveston? Are they in need? We remembered Chicago in her distress, and dentists are not usually behindhand at such times. There is no telling how soon any of us may be down in the mouth. There are lots of good fellows in Texas, and perhaps we can help them tide over. Let's find out anyhow.

Cordially,

NEW YORK.

### BALTIMORE LETTER.

*Dear Digest:*

BALTIMORE, MD., Sept. 18, 1900.

I am sorry you don't know the difference between "libel" and "label;" one is false, the other is true; one is intended to make an erroneous impression, the other is to give warning as to where, in propriety, the thing labeled is to be placed. That was *label* your blue pencil struck; not that I care very much, for, after all, it would go rather hard if we were all labeled.

After a most trying summer, the tail end of the Texas storm has brought us relief, and work has begun with a will. Our men are at home, some from across the water, others from rustic quiet which is to be had near at hand, and not a few from that greatest of all resorts, Atlantic City, the like of which cannot be found in the world for kaleidoscopic experiences and scenes. All look fresh and full of vigor—a pleasant word, some novel experience to recount, a fish this long—

"Oh, but she was a beauty, and rich! Say, I don't expect to practice dentistry always!" How it cheers and brightens one, just to hear these outbursts of new life—a life which would be a stranger to us if we had to work always without a chance for an outing. But work we must, for they say this will be a busy winter professionally. Big things are being planned by the officers of the State Society. Can't you drum up some of your western men? We'll treat them right, and they'll be glad they came down to the land of the bivalve and the crawler. The union meeting takes place in Baltimore this year; why wouldn't it be a good thing to try the steamboat experiment? I recall a meeting of the Southern Association which was held in Baltimore about '82 or '83, when an excursion down the bay was the most popular event of the meeting.

One thing is certainly manifest to a casual observer, and that is that many of the rough places have been smoothed away by the good, healthy growth of professional activity in our state. More sympathy, fairer professional treatment, and better feeling generally are the outcome of our rubbing together at the meetings. Then, so many of our younger men are doing their share—why, when we went to Richmond last spring we almost chartered a boat, and we had a good time—at least going down. It seemed a little chilly after we got there; I think we were all agreed on that, and don't you think it argues well that we can all agree on a point? We are positively getting amicable.

One of our brightest and most active society workers, Dr. C. J. Grieves, has had hard luck this year. The bugs got hold of his Pyers patches, but bless you, he was too tough for them; and the last we heard he was resting and fattening down by the sea. Too bad that the Doctor had to lose so much time from his office, and there was the suffering and distress to his friends. But then, we have heard the expression—"suffer and be strong;" and surely, now that the

danger is past, is it not pleasant to know that you have so many friends? I congratulate the Doctor, and wish him a like triumph o'er all the enemies of mankind.

There are few who have been acquainted with the sorrowful homecoming of one of our best loved members but have been deeply affected by the pathetic circumstances attending it. Dr. C. C. Harris, who had been absent in Europe for two months, returned to his home to find that his wife had died two weeks before his arrival. His family thought it best not to distress him with the facts when he was so far from comforting friends; and after all, this seemed a wise course, as what boat could sail to suit one hurrying on to such affliction? Mrs. Harris was without children, and the constant and almost only companion of the Doctor. We cannot measure his grief; let us try to help him bear it.

It seems that some of our friends did not get as much out of the World's Dental Congress as they expected, that is, those who did not speak French. They could not keep up with the plans and places of meeting at first, and even when that difficulty was overcome they invariably found the congress listening to some essay in German, French or Italian.

What's to hinder the dentist from studying a language or two? I remember a Baltimore physician who became late in life the master of several tongues, and it was his common boast that he acquired one new language a year. Our younger men, who still have time on their hands, should be doing something constantly to acquire culture, hence the hint.

Say, that symposium on dental education at the American Medical Association knocks me silly. I would like to discuss it (them), but it's too late; then, too, I would like to solve that dissolved theorem in the *Indiana Journal*—next time possibly. Meanwhile be good.

Cordially,

ORIOLE.

ARTIFICIAL SPONGES are being made in Germany by Dr. G. Pum of Graz. His experiments are based upon the action of zinc chlorid solution upon pure cellulose, says *The Trade Journal's Review*. The resultant product swells enormously with water, but turns to a horn-like substance on drying. In order to retain for the product the property for also absorbing water after drying, alkali-haloids are employed in treating the cellulose with the zinc chlorid. The mass after manipulation and molding is said to take the place of sponge in all its uses. It is claimed that a real rubber substitute may come from this field.

# **The Dental Digest.**

PUBLISHED THE TWENTY-EIGHTH DAY OF EVERY MONTH

At 2231 Prairie Avenue, Chicago,

Where All Communications Should be Addressed.

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## **Editorial.**

### **PROTECTIVE ASSOCIATION MEMBERSHIP CERTIFICATES.**

When the Protective Association was first organized it was intended to issue handsomely engraved membership certificates, which should be not only an ornament to any dentist's office, but which would also show agents of various patent shark companies that the owner of said certificate did not care to bother with them. Unfortunately for our plans, however, the receipts from membership fees during the first eleven years were so small, and the expenditures for litigation, etc., so large, that the Association never had any money in the treasury which could be devoted to the purpose above outlined.

When the Association was reorganized last fall, however, an abundance of capital was provided, and it has been the intention of the management ever since then to have the certificates engrossed and issued. The Crown Co. have kept the chairman and attorneys of the Association so busy that it has been impossible to do one thing which was not absolutely necessary, but during the summer months when the courts were not in session time has been found for the work. The certificates are now in course of preparation, and we hope to issue them in a month or six weeks. Members who are in good standing, that is, who have paid \$20 to cover the membership fee and assessment, may therefore look for their certificates at that time.

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### **TEXAS DENTISTS IN NEED.**

Just at time of going to press we received a telegram from Dr. B. Holly Smith of Baltimore, which read as follows: "Make an appeal for Galveston dentists. I have received some most pathetic letters."

Probably every one of our readers has seen the accounts of the

awful cyclone and tidal wave which devastated several towns in Texas recently. Our professional brethren must have suffered with the rest, and as even those who saved their lives in the wrecked cities generally lost most of their perishable possessions, it can readily be understood how helpless those dentists must be without the tools of their craft.

Reports of floods in other parts of the unfortunate state are rife at the present time, which means additional suffering and loss of life, all of which will fall upon the dentists as well as other residents. We would therefore urge all our readers to make such contribution as lies within their power. Funds have been started all over the country to assist the Texas sufferers generally, but as many of our readers might naturally wish their contributions to be applied directly to the relief of their suffering fellow-practitioners, we shall be very glad to have any or all contributions sent direct to this office, when they will be forwarded immediately to the proper point for distribution, and we will see that only the dentists are benefited thereby. Such disasters may fall upon any community at most unexpected times, and as we hope for relief in our hour of affliction let us now cheerfully extend aid when it lies within our power to do so.

### CROWN COMPANY BRINGS MORE SUITS IN NEW YORK.

In our last issue we stated that the suits brought by the Crown Co. in Boston last fall had been recently dismissed by the court. We reminded our readers that they must not think from this occurrence the fight was over, as other suits were pending, and we believed the Crown Co. would push cases in the east and especially in New York.

Since last writing they have brought suits against the following practitioners of New York City: H. Albert, Edward H. Allen, Ralph E. Askin, M. A. & J. M. Carman, Emanuel Draf, A. K. Hussey, J. H. Meyer, G. H. Modeman, A. Stubenrauch, Wm. H. Walker, W. W. Walker, John Wesboy, W. De C. White. A few of the above are members, and the Protective Association has already taken charge of their cases. We do not know definitely what action the non-members have taken, but understand that some settlements have been made, and that the Crown Co. have obtained

judgment against others. There may be and probably are other suits, but these are all which have come to our notice up to the present.

The methods adopted by the Crown Co. are very similar to those of twelve years ago, at the beginning of the Protective Association work. At that time they brought a large number of suits against members in different parts of the country, but when the Association entered defense and attempted to force a trial, the Crown Co. had the suits dismissed and paid the costs, keeping up this Aguinaldo style of warfare until New York was reached.

Twelve years ago, however, a decision either way would have had greater influence than in the present suits. Then the cases all came before and were decided by the federal courts. Now all the suits will come before a jury of twelve men. That is, each individual sued will have a separate trial, and the decision in one case will have very little to do with the next one.

As before stated, the Association is taking care of all its members, and is filing appearances, furnishing counsel, etc. without expense or trouble to those sued. Although we have cautioned the membership before on these points, we would again repeat that under no circumstances should any self-respecting member of our organization settle with or make any arrangement whatever with the Crown Co. The courts are not yet opened for the fall term, but we believe this starts in a week or two, and all cases will then come up in regular order.

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### Notices.

#### WEST VIRGINIA DENTAL ASSOCIATION.

The annual meeting of this society was held Aug. 30-31, 1900, at Wheeling, and the following officers were chosen: Pres., G. M. McNeeley; V. P., J. M. McVore; Sec., W. B. McKee; Treas., W. McKinley.

#### MASSACHUSETTS BOARD OF REGISTRATION IN DENTISTRY.

A meeting of this organization for examination of candidates will be held Nov. 14, 1900, at Boston. Applications must be filed with the secretary before Nov. 7. Application blanks and any further information desired may be obtained from G. E. Mitchell, Sec., Haverhill, Mass

#### AMERICAN DENTAL SOCIETY OF EUROPE.

At the twenty-seventh annual meeting of this association, held in Paris, Aug. 7, 1900, the following officers were elected for the ensuing year: Pres<sup>2</sup>,

W. Mitchell, London; V. P., S. S. Macfarlane, Frankfort-on-Main; Treas., L. J. Mitchell, London; Sec., W. E. Royce, Tunbridge Wells.

#### NORTHERN INDIANA-SOUTHWESTERN MICHIGAN SOCIETIES.

The joint convention of these two organizations was held at St. Joe, Mich., September, 1900, and the following officers were elected: Southwestern Michigan Society—Pres., N. E. Hopper; V. P., E. A. Honey; Sec., C. Johnson; Treas., C. E. Burchfield. The next session will be held in Battle Creek in April. Northern Indiana Society—Pres., W. O. Vallette; V. P., J. R. Pagin; Sec. and Treas., M. A. Payne. The next session will be held in Goshen.

#### MINNESOTA STATE DENTAL ASSOCIATION.

The annual meeting of this organization was held Sept. 4-6, 1900, and the following officers were elected: Pres., F. H. Orton; V. P., J. O. Wells; Sec., J. S. Todd; Treas., H. M. Reid; Master of Clinics, S. R. Holden; for appointment on the state examining board, F. H. Orton and J. E. Weirick. The next meeting will be held in Duluth. The session just closed was in all respects the most successful ever convened, and sixty-two new members were admitted.

#### LATEST DENTAL PATENTS.

- 654,869. Dental engine, F. H. Berry, Milwaukee, Wis.
- 655,933. Dental appliance, D. O. M. LeCron, St. Louis, Mo.
- 656,124. Dental mallet or plugger, U. G. Kennison, Aberdeen, Wash.
- 656,300. Dental root-canal drier, D. Perry, St. Paul, Minn.
- 656,556. Dental cabinet, C. H. Lind, assignor to A. M. McCarty and others, Canton, Ohio.
- 657,002. Dental impression cup, H. D. Osgood, Concord, Mass.
- 657,199. Dental electric lamp, B. E. Lawton, Providence, R. I.
- 657,360. Dental chair, F. Ritter, Rochester, N. Y.
- 658,179. Rubber-dam clamp, J. W. Ivory, Philadelphia.

### News Summary.

J. GASKELL, a dentist at Lockport, N. Y., died Aug. 28, 1900.

FRANK D BURLESON, a dentist at Pomona, Cal., 33 years old, died Aug. 18, 1900.

A. W. BUCKLAND, 56 years old, a dentist at Woonsocket, R. I., died Aug. 24, 1900.

WM. HORSEFIELD, a dentist at Manhattan, N. Y., formerly of Flushing, died Sept. 8, 1900.

WM. H. LAW, 47 years old, a dentist at Hazardville, Conn., formerly of Hartford, died Sept. 1, 1900.

E. F. WILSON, a dentist at Montclair, N. J., formerly of Rochester, N. Y., died Sept. 17, 1900, aged 81 years.



D. W. KENNEDY, a dentist at Troy, N. Y., formerly of Trenton, N. J., died Sept. 8, 1900.

REUBEN SCHWARTZ, 58 years of age, a dentist at Lebanon, Pa., died of dropsy Sept. 18, 1900.

ARTHUR E. WALES, 35 years old, a dentist at Rocky Hill, Conn., formerly at New Britain, died Sept. 14, 1900.

J. C. HOUSE, 68 years of age, died in Lowville, N. Y., Aug. 23, 1900. He was the inventor of the asbestos casket.

JULIUS ROOT, one of the oldest dentists at Elmira, N. Y., died suddenly Sept. 14, 1900, from a stroke of paralysis.

JOHN L. GROVE, a dentist at Liberty, Ind., died suddenly of heart failure Sept. 16, 1900. He was a veteran of the Civil War.

FITTING FIGHT.—If a dentist and a manicure should come to blows could it not be properly said they went at it "tooth and nail?"

V. MCALPIN, the oldest dentist in Butler, Pa., 70 years of age, died Sept. 1, 1900, from paralysis. He left six children, four of whom are dentists.

CHLOROFORM PROVES FATAL.—A well-known man of Waverly, Ohio, 56 years old, died Aug. 25, 1900, while under the influence of chloroform given for tooth extraction.

FALSETTO.—It is asserted by a newspaper correspondent, whose veracity we will not vouch for, that a vocalist who purchased a complete set of teeth began to sing "False-set-O!" soon after.

JOHN D. HUNTINGTON, the oldest dentist in Syracuse, N. Y., 73 years of age, died Sept. 16, 1900, after a long illness. He was a prominent prohibitionist and well known in public affairs.

SAGINAW VALLEY DENTAL ASSOCIATION held its annual election of officers at Bay City, Mich., Sept. 1. They are: Pres., M. T. Watson; V. P., J. A. White; Sec., C. F. Porter; Treas., E. T. Loeffler.

MANILA DENTAL SOCIETY.—A dental society was organized Feb. 4, 1900, in the Philippine Islands. It meets twice each month, and all legal practitioners in the islands are eligible to membership.

MIRRORS SPOT AND BLUR because they are placed where a strong light falls directly on them. All mirrors should be so placed that the light shall come to them from the sides.—*Sept. Ladies' Home Journal*.

CHAS. G. VON SUESSMILCH, a dentist at Duluth, Minn., was adjudged insane Sept. 14, 1900, and sent to the asylum at Fergus Falls. While his case is serious there is a chance that he may in time regain his faculties.

DENTIST RUN OUT OF TOWN.—Dr. Spring, a dentist at Collinsville, Conn., left town Sept. 8, 1900. It was claimed that he had made trouble between man and wife where he boarded, and residents threatened to tar and feather or lynch him if he did not leave.

ISRAEL COOK, a dentist at San Jose, Cal., was adjudged insane Aug. 15, 1900, and committed to the care of his friends. He owes his unfortunate

condition to the habit of using cocain and morphin, which were first administered by a physician to relieve asthma.

**GOLF A DISEASE.**—Farmer Hornbeak: What's your city nephew's business? Farmer Gapp: Why, he plays golf most of the time.

Farmer Hornbeak: Huh! That ain't a business—it's a disease!—*Harper's Bazar*.

**INDIANAPOLIS DENTAL CLUB** was formed Sept. 18, 1900, and the following officers were elected: Pres., M. Wells; V. P., H. D. Weller; Sec. and Treas., S. H. Creighton; Ex. Com., J. E. Cravens, Chairman; H. C. Kahlo, J. Q. Byram.

**ACETIC ACID; GERMICIDE.**—The investigations of Drs. Abbott and McCormick of the Johns Hopkins University show that a solution containing 7 per cent of acetic acid is more effective as a germicide than bichlorid of mercury.—*Items*.

**LASTING ANESTHESIA** can be produced by spraying ethyl chlorid over a surface previously moistened with a concentrated watery solution of cocain. Cocainized ethyl chlorid has been employed for opening abscesses, etc.—Bardet, *Med. Rec.*

**FAITH-CURE FAD.**—It is stated in the *Medical Sentinel* that there are twice as many persons studying in the so called schools of mental healing, faith cure, Christian science, and the like, than in all the medical schools in the country combined.

**R. E. HARBISON**, a dentist of Armstrong Township, Pa., was seriously injured Aug. 24, 1900, by the explosion of a vulcanizer. It blew into many pieces, and the stove upon which it was standing was completely wrecked. The dentist's daughter was also injured.

**COMPARISON.**—A lady from the far West, who had just been through a course of typhoid treatment with enemata en masse, said while speaking of her experience: "I don't know much about different kinds of doctoring, but I must say I prefer quartz to placer mining."

**"SIMPLE" TOOTH POWDER RECIPE.**—The following appears in a paper intended for women. The prescriber must be as simple as his prescription. Equal parts "burnt crust of bread, white sugar and Peruvian bark. A few drops attar of roses. If a paste is preferred, add a little honey."

**COCAIN BRINGS ON DELIRIUM.**—A man at Indianapolis, after having five teeth extracted, was found in a delirious condition Sept. 10, 1900, and was taken to the hospital, where the physicians diagnosed cocain poisoning. When interviewed the dentist declared that he had used nothing but ice water.

**COMPRESSED AIR APPARATUS.**—To a small motor which runs a fan in summer, or a grinding and polishing apparatus, I connected a small bicycle pump, which pumps air into a reservoir containing ten gallons. This gives a pressure of ten pounds, which I find sufficient.—W. St. G. Elliott, *International*.

**EXTRACTED NINETY-TWO TEETH.**—According to the *Terre Haute, Ind. Express*, an advertising dentist in that city extracted ninety-two teeth on Sept. 12. The newspaper gives the names of those upon whom the outrage was perpetrated and also speaks of the operator's great reputation as a painless extractor.

**CLERGYMAN IN DIFFICULTY.**—It is reported that a minister at Asbury Park, N. J., who was chatting pleasantly with one of his attractive parishioners, dropped his false teeth from his mouth, and the young lady's fox terrier ran off with the set, and kept the clergyman on both the anxious and mourners' seat for some moments.

**"GAGGING."**—Bromidin, in half teaspoonful doses every four hours for two days before operating, benumbs the sensory nerve tips of the buccal cavity and thus facilitates taking impressions or adjustment of rubber-dam, otherwise impossible because of the annoying gagging peculiar to some individuals.—*Va. Med. Semi-Monthly*.

**CARBOLIC ACID IN BURNS AND SCALDS.**—Cover the surface with the pure full strength acid. It combines with the serum to make immediately a new skin over the wound and pain ceases. Combine it with oil in the proportion of twenty drops to one ounce of oil and you have one of the best liniments that can be found.—*Med. Summary*.

**BILL NYE ON BASEBALL.**—Bill Nye, the famous wit, once acted as brevet-umpire in a game of baseball between the "regular" and homeopathic doctors of Minneapolis. He says that "the common error seemed to be the same as that made in the Garfield case—an incorrect diagnosis as to the course and location of the ball."—*Indiana Med. Jour.*

**NAUSEA OVERCOME.**—In case of nausea arising from taking impressions, placing the rubber-dam, or even pregnancy, a 2 per cent solution of cocain, blown directly up the nostrils by means of compressed air, so as to have the fluid in contact with the olfactory nerves, will often relieve the severest case of retching.—*S. Freeman, International*.

**J. W. EGBERT**, a dentist, formerly of Minonk, Ill., who has been practicing in India for the past three years, kidnaped his three-year-old daughter Sept. 23, 1900, from her mother's residence in Chicago. Dr. Egbert's wife left him in India two years ago because, she claims, he treated her cruelly. A warrant has been sworn out for his arrest.

**SUES UTAH BOARD.**—A woman at Salt Lake City has petitioned the district court for writ of mandamus to compel the state dental examining board to issue her a certificate. She claims that she answered correctly 104 questions, all that were asked, and that the board, through personal or sex prejudice, wishes to keep her from practicing.

**LABOR UNION WILL EMBRACE DENTISTS.**—President Gompers of the American Federation of Labor has decided that dentists are eligible for membership in that body, and unions will probably be organized. Those who will join are journeymen dentists who work for other practitioners, and therefore can not be classed as strictly professional men.

**CHRISTIAN SCIENCE REASONING.**—Synnex: You profess to be a devoted believer in Christian science, but I noticed that when you had a tooth extracted the other day you took gas. Mentor: I took the gas, not because there is such a thing as pain, but from fear that I might be led into thinking that there was in the excitement of the moment.—*Boston Transcript*.

**LIGHTNING STROKE WITH RECOVERY.**—According to a correspondent in the *Medical Record*, a girl 18 years of age was struck by a flash of lightning on May-18, and was found with her clothing on fire and the flesh badly burned. One shoe was also burst open. Strange to relate she recovered and is now none the worse for her accident except the scars resulting from the burns.

**TO RESTORE BADLY DECAYED ROOT FOR CROWNING.**—Drill canal as for pin; trim orange-wood stick to fit canal; coat the stick with a thin film of wax. Having the canal dry and amalgam mixed, insert the waxed stick in the canal and pack amalgam around it, filling flush with gum margin. After amalgam has set, remove the waxed stick and proceed as required.—C. L. Tool, *Dental World*.

**NOVEL DEADBEAT SCHEME.**—A pretty young woman at Syracuse, N. Y., has for the past two years been having work done by various dentists, but when the bills were presented she professed entire ignorance of the transaction. All the defrauded dentists were at first bluffed out by her assurance, but have now conferred over the matter, and will undoubtedly bring the young woman to book.

**SUED BY TWO DENTISTS.**—A woman of Munhall, Pa., had a set of teeth made by a Pittsburg dentist which proved satisfactory until she had to pay for them, then they did not fit, so she went to another dentist and made an appointment for examination, but failed to appear. The first dentist is now suing her for the price of the teeth, and the second dentist for the lost time, and judgment has been given in both cases.

**IS THERE A DENTAL TRUST?**—The Ransom & Randolph Co. of Toledo, Ohio, announce that their cabinets are "For sale by depots of the American Dental Trade Association, and by the manufacturers." Will the Ransom & Randolph Co. or some of the supply houses which are in "The American Dental Trade Association" kindly inform the profession whether that body embraces all reputable supply houses or whether it is a trust.

**TO SHARPEN FILES.**—Wash with soap and a stiff brush, and immerse in a mixture of

Nitric acid.....	1 part.
Sulfuric acid.....	3 parts.
Water.....	1 part.

Let them remain in the fluid until well cut; then wash in lime water.—*Dental Hints*.

**DUAL ACTION OF THE BRAIN.**—Inglis holds that we do all our thinking with one side of the brain, the other having an entirely subordinate part and being called into independent action only under special and pathologic conditions. He supports this theory by the usual arguments of righthandedness,

double consciousness, etc., and explains by it certain facts of mental disorders observed. He believes the attempt to counteract righthandedness or produce ambidexterity is a physiologic crime.—*Jour. A. M. A.*

**DISLOCATION OF THE JAW IN EPILEPSY.**—Charles J. Aldrich reports two cases of this unusual accident. The first was in a woman aged twenty-one years, and the second in a man twenty-five years. In each case the first physician called failed to make a correct diagnosis. "From our knowledge of the action of the facial muscles during an epileptic paroxysm," the author says, "we would hardly expect a luxation of the jaw to occur as a complication."—*Phila. Med. Jour.*

**STYPTIC FOR BLEEDING GUMS.**—

R	Tinct. krameriae.....	3i	4
	Chloroformi .....	m, vii	5
	Acidi tannici .....		
	Menthol, aa .....	gr. iv	24
	Aquæ destil .....	3ii	64
M.	Sig. Apply locally .....	—Viau, in <i>Med. Record</i> .	

**NEW TERROR OF COURTSHIP** has been developed in the case of an Indiana brunet. For some days she had been suffering from a supposed attack of pleurisy, but when a doctor was called in he found that one of the young lady's ribs was fractured. After much questioning, the girl blushingly admitted that her best beau had inflicted the injury while giving her his usual tender embrace before parting on his last visit. The occurrence of the accident was marked by a sharp pain in the side, "a catch in her breath," and a sudden relaxation of her hold.—*Chicago Med. Recorder.*

A GREEN WATERMELON sat on a fruit-stand,  
Singing, "Mellow, I'm mellow, I'm mellow,"  
And a small boy stood there with a cent in his hand,  
Singing, "Mellow, it's mellow, quite mellow."  
He ate a big hunk cut right out of the heart,  
And he ate it all up to the hard outside part,  
And they carried him off in a rag-dealer's cart—  
Poor fellow, poor fellow, poor fellow.—*Medical Standard.*

**SWEATING OF THE HANDS.**—

R	Sodii boratic (borax).....	3iv	16
	Acid borici .....	3i	4
	Acidi salicylici.....	3iv	16
	Glycerini .....		
	Alcoholis diluti, aa.....	3iii	64
M.	Sig. Apply with friction three or four times a day.		

—*Jour. de Med. de Paris.*

**AFTER-PAIN FROM TOOTH EXTRACTION.**—Isaacson thinks that the painful sensations often felt after tooth extraction are due to retention of the pyogenic membrane, expansion of the osseous walls, fracture of the alveolus, retention of the root and spicule, and special conditions due to inflammation and suppuration. He uses the bur to take out the root when it cannot be reached by the forceps or is too small, and the use of ethylic chlorid or co

cain injection rather than nitrous oxid, which is too temporary in its effects. The chief point of his paper is that these pains are nearly always caused by foreign substances and that removal is preferable to any local treatment that can be used.—*Jour. A. M. A.*

**FLASHES OF ELECTRIC LIGHT ON THE EYE.**—Dunbar Roy believes there have been more cases observed than reported of temporary injury to the eye through intense electric flashes. The danger of the electric light is illustrated by a series of examples from practice. In a number of instances cessation from school work has had to be ordered because of the injurious incandescent lights; and in other cases student's lamps had to be substituted. Electric ophthalmia is discussed. It seems probable that domestic lights are injurious to the eye in proportion to the amount of ultra-violet rays they contain. The Welsbach gas light seems less injurious as a light by which to read and work than others. There should always be an under shade to mitigate the light.—*Med. News.*

**AUTOPSY ON KING JAMES I.**—Mr. Jonathan Hutchinson in his *Archives of Surgery* says that in the Harleian Manuscript 383, there is a copy of a letter from a Mr. William Neve to Sir Thomas Hollande, concerning the embalment and bringing to town of the body of King James. The writer says: "The King's body was about the 29th of March disemboweled, and his heart was found to be great but soft, his liver freshe as a young man's, one of his kidneys very good, but the other shrunk soe little as they could hardly find it, wherein there was two stones. His Lites and Gall, blacke; judged to proceed of malancholy. The semytur of his head so stronge as they could hardly breake it open with a chisell and a sawe; and so full of braynes as they could not upon the opening keep them from spilling; a great marke of his infynite judgement."

**DENTIGEROUS CYSTS OF THE SUPERIOR MAXILLA.**—Dr. Frederick Cobb, Boston. The location of the hard bony swelling, he said, was usually at the side of the nose, and examination of the nostril sometimes showed a bulging of the outer wall of the vestibule outward and upward. Sometimes the sinus could be seen running upward into the swelling. The usual symptoms were slow swelling of the face, without suffering, except perhaps a slight pain about the roots of the teeth. On the sound side the transmission of light below the organ was better than on the other side. On inserting a cannula into the tumor, a brownish fluid escaped, and if by means of a syringe fluid was injected, it escaped around the trocar. After evacuation of the cyst and its consequent collapse, a sharp bony prominence, representing the roof of the cyst, would become apparent. In his own cases the swelling had contained no teeth. It was important to determine the condition of the teeth entering the cyst. The bony opening in the cyst should be packed until granulation had become well established. He thought these cysts started in an inflammatory process originating around the diseased teeth, characterized by excessive secretion. Some of the cases had come to him with a diagnosis of antrum disease. The salient points in the treatment were evacuation of the cyst and careful dental treatment.—*N. Y. Med. Jour.*

**CARE OF TEETH IN THE SYPHILITIC.**—Dr. C. Travis Drennen (*Memphis Med. Monthly*) says that he makes it a practice, if the gums are in poor condition and the teeth and tongue unclean, to have the patient procure a rather heavy toothbrush and with it rub and scrub before and after each meal, not only the teeth and gums but likewise the tongue, until it also is clean. Following this, a saturated solution of boric acid may be used with excellent effect for an indefinite length of time. In fact, it is about the only preparation with which he is familiar that can be used without the production of deleterious results. No harm is done should the gums be soft and spongy, bleeding freely under such rough handling, for the parts will be relieved of their engorgement and pathogenic material washed away. Dr. Drennen has found nothing half so simple and effective for hardening the tissues as alcohol, and this he uses night and morning by rolling a piece of cotton on some suitable applicator and thoroughly applying it to the affected areas. Should the patient complain too much at this seeming hard treatment, cocain may be applied for a few times and then the work can be accomplished with all ease. Nicotin is not only poisonous to the general constitution under such conditions, to various degrees in different individuals, but it is likewise a source of irritation to the mucous membrane of the mouth, whence it should be discontinued in all forms until the patient is considered cured.

**WAS IN THE BUSINESS.**—It was on a Cleveland street car that a well-dressed man carried his hand to his jaw now and then and uttered a stifled groan. After a bit a fellow-passenger had his curiosity aroused and brusquely queried: "Toothache?"

"Yes."

"I've been there and know all about it. If she's holler and has the jumps it ain't no use fooling around. What you want to do is go to a dentist."

"Um! Jerusha, but how it aches!"

"Go right to the dentist and have it yanked out. Man with the toothache always feels a little scared about having it yanked, but that's all imagination, you know."

"I'd rather be shot!" groaned the sufferer.

"Oh, pahaw! Go to some dentist who gives laughing gas. He'll give you gas and take the tooth out without your knowing it. I pledge you my word that it won't hurt any more than paring of a finger-nail."

"Um! What a liar! G'way from me!"

"Why, man, I pledge you my word that you'll never—"

"Don't talk to me! I know all about it! I've been a dentist myself for the last fifteen years!"

"Oh, you have!" growled the other as he backed away. "Well, that's different. It will not only seem to you as if your blamed old head was being pulled off your shoulders, but your jaw will ache two weeks after, and I'm durned glad of it too!"

**AGREEMENT NOT TO PRACTICE CONSTRUED.**—A physician, it was alleged, agreed to sell his residence, house and lot in an incorporated town, and his practice as a physician, good-will and location in said town, and was, as it



was averred, to turn over and deliver to the purchaser his location, goodwill and practice in the territory surrounding said town, and was never to practice as a physician at any time in said territory. Now such contracts, the Supreme Court of North Carolina holds, *Hauser vs. Harding*, do not fall under the head of contracts for the restraint of trade, and are not, as such, contrary to public policy and void. But even so, it was argued that the contract was uncertain, both as to the time during which it was to continue and as to the territory over which it extended, and therefore void. Not exactly so, thinks the court. As to the uncertainty as to time, it says that it has heretofore held that where no time is mentioned in such contracts they are to endure during the lifetime of the grantor. Yet the language of that part of the contract which undertook to restrain the purchaser from practicing medicine outside the town mentioned, it states, was not sufficiently definite to mark and define any certain territory. Wherefore, taking the limits of the incorporated town as well defined, but the reference to territory surrounding it being too uncertain to be capable of being marked out or identified, the court holds that the seller should be enjoined and restrained during his life from practicing medicine within the corporate limits of said town, but that for uncertainty the contract could not be enforced as to the so-called surrounding territory.—*Jour. A. M. A.*

**PREHISTORIC BACTERIA.**—Owing to the ephemeral nature and to the exceedingly small size of bacteria, it would seem wellnigh impossible to study the minute forms which assuredly must have existed ages ago. Two French investigators, B. Renault and C. E. Bertrand, have, however, microscopically examined several varieties of anthracite coal and partially carbonized wood, and believe they have discovered petrified bacilli. Renault has even designated several of his species by name (*micrococcus carbo*, *bacillus carbo*, *bacillus colletus*). He advances the theory that these bacteria have effected the transformation of wood cellulose into coal, a theory which is decidedly opposed to our conception of the carbonization of wood. Bacteria, according to Renault, would therefore be most powerful factors in the geological development of the world.—*Scientific American.*

**ETHYL BROMID ANESTHESIA FOR EXTRACTION OF TEETH.**—Dr. A. P. Garine has collected 1,103 cases in which ethyl bromid was used in dental operations without a single accident. In one case the ethyl bromid proved of no avail in producing anesthesia, and chloroform had to be substituted. Children bore the drug well. The greatest number of teeth extracted at one time under the influence of the drug was seventeen. The effect of the first moments under the anesthetic is a sensation of asphyxia, and sometimes this gives rise to violent excitement on the part of the patient. In the majority of cases the patients recover rapidly from the effects of the anesthetic, and the after effects are not serious. The ordinary Esmarch mask is used and about 15 grams (half an ounce) of the anesthetic are given during the operation. Bromid of ethyl is said to be better than nitrous oxid because it does not produce the cyanosis which the latter causes, and because the analgesia lasts longer, even after the patient's consciousness returns.—*N. Y. Med. Jour.*

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